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ART. I. EXPERIMENTS *for ascertaining the Permanency of Chemical Compounds in their Passage through the Fluids.*

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WHETHER the process of assimilation be so invariable and powerful as to convert all substances received by the stomach into bland nutriment, or whether some matters resist its sway and retain their own nature while they pass into the circulation, is a question still debated in this country.

The affirmative would, in all probability, have long since been abandoned, but that it has found an able advocate in the Professor of the Practice of Physic of the University of Pennsylvania, whose distinguished talents and high standing give just importance to the opinions he maintains.

Already, however, a graduate of the College of Physicians and Surgeons of the University of New-York, who reflects honour upon it by his genius and learning, has replied to Doc-

tor Chapman with a force of logic and extent of information, that seemed to leave nothing to be desired or added.*

More recently, in the preceding number of this Journal, the review of Dr. Chapman's Therapeutics has again brought up the question. Again it has produced an able refutation, at the same time advantageously distinguished by the *suaviter in modo* and the *fortiter in re*, and exhibiting an example, which we hope will be followed, of conclusive argument and polite controversy.

We find the same subject employing the talents of Dr. Eberle in the 5th volume of the Medical Recorder. As if no part of it were now to be left untouched or undecided, the experiments, the arguments, the opinions of chemists, physiologists, and practitioners throughout Europe are, in this learned and able production, brought to bear upon the whole case in a manner, to us, perfectly decisive.

Indeed, the facts already known have been so well applied by various persons, if that any farther proof or elucidation be wanting, it can be only found in a renewed experimental examination of the fluids, with reference to the fact of heterogeneous substances being discoverable in them, possessed of the same properties with which they entered the chylopoietic organs. We are told† that satisfactory experiments of this kind have been performed by Dr. Harlan of Philadelphia, which confirm others made by Professors Tiedman and Gmelin; but as yet I have seen no detailed account of any of them. Moreover, it is always useful to repeat and vary experimental inquiries, until such time as the points in issue shall be settled by general agreement.

The following experiments were accordingly instituted, with the view of tracing from the stomach to the bladder a sub-

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* See Discourse of Thomas Cooper, M. D., now President of Columbia College, S. C., delivered before his Chemical Class, in the University of Pennsylvania, November, 1818.

† Medical Recorder, vol 5. p. 13.

stance that may be safely taken in large doses, and one that is easy to distinguish. I was assisted in them by my colleague, Professor Francis, and by Dr. James Anderson, who opened the animals.

1. I made a saturated solution of hydrocyanate of potassa, of which two ounces were mixed with a pint of milk, and given to a dog to lap. He took about one third part of this quantity, lay down, as if indisposed, and in about an hour vomited some. I tested what he threw up with a solution of permuriate of iron, and immediately obtained a blue colour. After this, the dog would not touch again such a mixture, even after two days of fast; so much was his sagacity alarmed.

2. I now triturated one drachm of chrystallized hydrocyanate of potassa with fresh butter and crumb of bread, which being made into a bolus, the same dog swallowed and retained.

Between three and four hours after, Dr. Anderson bled him largely from the jugular vein. A dose of hydrocyanic acid was then administered, of which he died without pain, and the abdomen was laid open. The lacteals and thoracic duct were seen well filled with milk-white chyle. On scratching the receptaculum, and pressing down the duct, nearly half a tea spoonful of chyle was collected. Into this were let fall a couple of drops of the solution of permuriate of iron, and a deep blue was the immediate consequence.

The urinary bladder being taken out, and the urine tested after the same manner, the result was also similar.

Before the death of the animal some fæces escaped involuntarily, and, as might be expected, they gave a Prussian blue with the permuriate of iron.

The next day, there were mixed with a portion of the serosity, for it was tinged red, a few drops of the solution of iron. They made it coagulate and turn to a greenish yellow. A drop of dilute hydrochloric acid was added, and it had the effect of changing the whole to a shade of light blue.

It results from these experiments, that the hydrocyanate of potassa was not decomposed in the stomach, nor in the intes-

tines, nor in the lacteals, nor in the bladder; and that faint traces of it were discernible in the serum of the general circulation.

We repeated the experiment on another dog, with a view chiefly to try the effect of the iron test on serum from the venaportæ. The animal was made to take a drachm and a half of hydrocyanate of potassa at short intervals, and bore it without inconvenience. He was killed with hydrocyanic acid, and then opened. As soon as the serum had separated, a portion of it was introduced into a small tube of white glass, and a few drops of the solution of permuriate of iron added. By rolling the mixture through the tube, the sides of it, where they transmitted light, exhibited a very distinct shade of blue. Persons, who knew nothing of the experiment, found it so, as well as half a dozen students who witnessed this second experiment.

Wherever the mesenteric vessels, or the external coats of the intestines, were lightly scratched with the scalpel, and touched with the solution, a strong blue was immediately exhibited.

The solution produced no change in the cystic bile, nor on the substance of that viscus.

Dr. Ducachet obtained a result of the same nature, of which he gives me the following account:

"June 5th, 1817. In the presence of Professor Francis, I performed the following experiment. I gave a cat about half a pint of milk, deep tinged with indigo. In half an hour I killed the animal; and upon dissection found the lacteals containing a fluid of a deep blue colour. In the lower part of the intestinal tract, the lacteals were perfectly white, the milk not having passed so low down. This experiment was made for the purpose of testing the truth of Musgrave's assertions respecting the absorption of foreign substances in the chyle."

In order to conclude with the greater caution from these experiments, I undertook to elucidate them by others made on serum actually containing hydrocyanate of potassa, which I dissolved in it myself. And having read in a paper of Sir Everard Home, in the Philosophical Transactions for

the year 1808, p. 53. that less than a grain of prussiate of potash to two ounces of serum would not produce a blue colour on the addition of a solution of iron, I dissolved one grain of hydrocyanate of potassa in two ounces of clear human serum held in a graduated measure.

About a drachm of this mixture was put into a test tube of white glass, and a couple of drops of the same solution of permuriate of iron were added. The serum was coagulated, and a deep Prussian blue produced. In the experiments that followed, I poured off each time an ounce of the mixture, and added an ounce of fresh serum, so as to leave the quantity of hydrocyanate of potassa in every succeeding experiment, just half what it was in that immediately preceding.

1. Thus, one grain in two ounces of serum gave a Prussian blue.
2. Half a grain a bluish green.
3. Quarter of a grain gave a decided green with a shade of blue, but not so deep, or characterized, as in the experiment on the serum of the second dog. Whence we may infer, that in the serum of this dog there was, at least, one eighth of a grain of the hydrocyanate to the half ounce.
4. One eighth: a couple of drops of the iron test liquor coagulated the serum, as it did indeed in every trial, and gave an olive green, with a distinguishable shade of blue, but still lighter than in No. 3.
5. One sixteenth: the addition of the test did not alter the light yellowish brown colour of the serum so much as in the former experiments, in which it was turned more or less green, but there was a distinguishable shade of blue, especially where the mixture lay thin on the side of the tube and light was transmitted.

In all these experiments the production of the green colour must be ascribed in part to the effect of the test on the caustic alkali of the serum; for I have frequently seen that a shade of green results from the addition of a solution of permuriate of iron to that of caustic potash or soda in water.

Not knowing what salt of iron was employed by Sir Everard Home in his experiment above referred to, I went over my experiments on serum with a saturated solution of crytallized proto-sulphate of iron in distilled water.

It gave with the serum No. 1, a *bluish* green, in which the blue predominated under the direct rays of the sun and reflecting them.

With No. 2 a *greenish* blue; meaning that the green predominated, seen in the same light.

With No. 3, a pale green and no perceptible blue.

With No. 4, the colour of the serum seemed only to be diluted. There was no appearance of green or blue; which renders it probable that wheresoever green was formed there must have been present more or less of the blue colouring matter, and consequently, that it was not wanting even in the serum of the blood of the first dog, since this also gave a marked green with the permuriate of iron.

It also results, that the permuriate of iron is more sensible than the proto-sulphate, in the proportion, at least, of 1 to 16.

The chyle, which Professor Chapman considers next to the blood in point of elaboration, was not in those cases the same as if no hydrocyanate of potassa had been taken, and consequently it disproves the assertion, that *the process of assimilation completely animalizes all articles subjected to its influence.* "Can it be credited, is the question asked, that any substance, after a subjection to the digestive and assimilative powers, retains in the slightest degree its original properties.*" The experiment just detailed will certainly warrant a belief that it may; at least as relates to the chyle, in which the hydrocyanate of potassa was apparent, and not decomposed, nor reduced to a homogeneous fluid.

If, according to the opinion of Professor Chapman, the process of assimilation as performed by the chylopoietic viscera,

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* Chapman's Therapeutics, vol. i. p. 43. 45.

or by any part of the absorbent apparatus, completely decomposes all substances, and, however discrepant in their properties, reduces them to a homogeneous fluid, fitted for the purpose of nutrition; if this opinion be a just interpretation of the laws of the animal economy, medicines themselves, when taken into the stomach, are successively converted into nutriment; and being thus reduced to the condition of common food, can have no other, or greater effects than our aliments.

If mercury and bread be alike convertible into nutritious matter, without the least difference, why is mercury more requisite than bread for the cure of any disease? Or what necessity is there for any of the substances called medicines? seeing that their properties begin to vanish from the moment of their reception by the stomach, to that of their expulsion from the body.

In the way in which I understand the doctrine of Professor Chapman, the solution of this difficulty might be attempted by saying that the moment medicines touch the stomach they excite in it a sympathetic action ere they are altered into chyme, and that this action constitutes their curative power. But though the gratuitous assumption were allowed, it still remains as a difficulty that the change, or metamorphosis, of the medicine begins the moment it is taken, and is consummated as soon as chyme and chyle are formed. Medicines, it must then be owned, will have a very short time allowed them for effecting their cures: and to accomplish any thing they have need to be instantaneous in their operation. This would just leave us a Brunonian Materia Medica, and limit our remedies to the diffusible stimuli alone.

We know, for a fact, that substances which are insoluble do not affect the constitution. The mechanical results of one or two drugs cannot be deemed an exception. And if they are inactive, as medicines, which cannot mingle with our fluids, certainly they can be as little active, which are entirely altered, digested, assimilated, converted into bland nourishment. Now, whereas medicines do act, and even some very slowly, it

follows necessarily, we think, that they are not entirely altered, but enter the system with enough of their own nature left to produce their peculiar effects.

There seems to be a contradiction in maintaining that not a vestige of the original properties of a drug is left, and yet, that it can act as a medicine. When a dose of salts, for instance, produces the *sympathy* of purging, they are not yet assimilated, but as long as they evacuate, they retain their proper nature throughout the intestine, and may be detected in the feces.

I have ascertained, that after taking one ounce and a half of phosphate of soda, if the feces of the second or third discharge be filtered and treated with muriate of lime, a precipitate will be left, having the characters of phosphate of lime.

Aloes taken instead of salts exerts no purgative sympathy on the stomach. It retains it all, in spite of the assimilating powers of the stomach, duodenum, pancreas, and liver, until it reaches the large intestines, on which it acts with its own affinity to those parts, and from which it passes off in the feces.

If mercury be rubbed on the thighs it will salivate the mouth; but cannot, I should think, be assimilated to our food while it is producing salivation. If it did not retain, in the slightest degree, its original properties, how could it cure syphilis? In the case supposed, should it be said that it produces its effect by an impression on the skin, or on the internal solids, such as the salivary glands, after absorption; even so, it must arrive at those glands in a condition to stimulate them. It must arrive, not assimilated, digested, and altered, but as an active mercurial preparation. The idea of a medicine suggests a substance tenacious of its nature, and that resists assimilation and change before it reaches the organ to which it has an affinity, and on which it produces its appropriate effect. With regard to mercury those organs are the glands, not the salivary glands only, but all; the liver among others, in the diseases of which, mercury is so often serviceable by restoring or increasing its secretions. Wherever

rubbed in, the mercurial ointment is carried by the circulation to the glands, which are then excited by the fluids thus charged with the mercurial preparation. We mean that they are the vehicle of the remedy, and it follows that they may as well be the vehicle of disease. The sanative action, in the present instance, depends on the mercurialized fluids, and consequently on their composition; but when it is once admitted the source of action may be in the fluids, we cannot deny that they will produce a morbid one when they are disordered, which is the important conclusion.

As to the fact, that substances introduced into the circulation act upon some organs more manifestly than upon others, by what I may be allowed to call a species of affinity, it rests on manifold experiments, and cannot fairly be questioned. Those substances circulate, consequently, with the blood, unassimilated and unchanged. A moderate dose of a solution of tartar emetic transfused into a vein has produced vomiting, and that alone. A large dose of infusion of colchicum transfused by Sir Everard Home into the vein of a dog, produced inflammation of the intestines, as if he had given it by the mouth. The tartar emetic circulated with the blood, but only acted on the organ best adapted to feel its impression, in consequence of that system of sensibilities by which light stimulates the eye, and air the lungs.

It being undeniable, that saline bodies taken by the stomach are discovered in the secretions unchanged, the eloquent advocate of the exclusive pathology of the solids, while he advances that the process of assimilation completely animalizes all articles subjected to its influence, alleges, at the same time, "that the secretions and excretions being removed beyond the sphere of the vital energies, the chemical affinities are sometimes again brought into play, by which substances (previously decomposed, &c.) are in part or wholly regenerated."*

Of this allegation there is offered no proof; so that it rests upon its own inherent credibility, or coincidence with other phenomena. Now, if we find certain substances in the serum

* Chapman's Therapeutics, p. 45.

of the blood and in the secretions that minister to chylification, which we also find in the excrementitious secretions of perspiration and urine, they may certainly exist in every fluid, and there is no sound reason for supposing that they are decomposed in one place to be reproduced in another.

In the serum of the blood we find,

Soda,
Muriate of potash and soda,
Phosphate of soda,
Phosphate of lime and magnesia.

In the colouring matter of the blood we find,

Phosphate of lime and magnesia,
Lime,
Carbonic acid,
Oxide of iron.

In the bile we find,

Soda,
Phosphate of soda,
Muriate of potash and soda,
Phosphate of lime and magnesia
Oxide of iron.

In the urine we find

Carbonic acid,
Phosphate of lime and magnesia,
Phosphate of soda,
Muriate of soda,

In the perspiration we find

Carbonic acid,
Phosphoric acid,
Muriate of soda,
And other saline bodies.

We here see that fluids, which differ greatly in composition and properties may nevertheless contain many substances in common, and that these are to be found every where from the stomach to the bladder.

It is true the humoral pathology derives strength from such

facts, for they show that several heterogeneous bodies may exist, without alteration of their properties, in the human fluids: and when a gentleman of distinguished talents and learning, in order to escape from the pressing consequences of such facts, can do nothing better than imagine an ingenious but unsupported hypothesis to account for them, we may safely conclude that the doctrine which totally rejects the pathology of the fluids is itself untenable. Indeed, it is more consonant to sound reason that the causes of our well-being and infirmities should exist in all parts of our complicated existence than in any one division of them exclusively.

A thing that has long influenced the theories of medicine is the importance attached to the study of chemistry. At one time it was exaggerated, at another no less undervalued; and even as yet the schools of medicine have not entirely devested themselves of prejudice on the subject. Those teachers of medecine who make light of chemistry disregard the fluids in their pathology, and are all for sympathy and irritation. They, on the contrary, who are well acquainted with chemistry, and, consequently, with the composition of the fluids, cannot believe but their difference must have its effects. Possibly the ardour with which chemical studies are more than ever prosecuted in Europe may be one cause, after a long interruption, of the growing estimation of the humoral pathology in that scientific portion of the world.

ART. II. A SKETCH *of the Legislative provision of the Colony and State of New-York, respecting the Practice of Physic and Surgery, communicated to the Editors by* T. ROMEYN BECK, M. D., *Professor of the Theory and Practice of Physic and of Medical Jurisprudence in the University of the State of New-York.*

THE following observations were originally intended to form part of an Essay on the progress and present state of

learning in the State of New-York, but as the period is uncertain, when I shall be enabled to complete it, I ask the favour of the insertion of what relates to Medicine in your Journal.

An extended history of medicine applicable to our state and country, should, I apprehend, contain a notice of the following particulars: 1 A sketch of the origin and progress of medical schools. 2. The provisions which the government has from time to time made to improve the profession. And 3. Biographical notices of distinguished physicians and surgeons. The first of these has already received considerable attention, and the last must be the work of many hands. I shall therefore confine myself to a notice of the second division.

The first colonial assembly of the province of New-York met in the year 1683; and the earliest record of legislative acts is, I believe, contained in a volume entitled "Laws of her Majesty's Colony of New-York, enacted in various sessions, the first of which began April 9, 1691, down to May 24, 1709," printed by William Bradford, 1710. After a careful examination of this work, I have found but one section that relates to the medical profession. It is interesting, inasmuch as it exhibits a difference of opinion between former legislators, and those of more modern times on a much disputed point. The section, or rather the proviso in question, is to be found in the law entitled "An act for settling the militia," passed in 1709. After enumerating those who are liable to be enrolled, it proceeds to state, that all the members of her Majesty's council, justices of the peace, high sheriffs, coroners, and all officers of courts, ministers, schoolmasters, and *physicians and chyrurgeons*, shall be free from being listed in any troop or company within the province.

The law regulating the militia of the province of New-York was continued with various amendments and alterations until the period of the American Revolution. In all the various acts, a proviso similar to the one stated above, is contained, and it is to be found in the one passed March 24th, 1772, the last of this

nature that was adopted previous to the commencement of hostilities.*

Physicians and surgeons were, however, liable to perform professional duty in cases of invasion, or even when it was found necessary, in self defence, to attack a neighbouring province. In the act authorizing the raising of two thousand six hundred and eighty men, being the quota of the province in the force of twenty thousand men, which were to invade Canada in 1758, it is ordained, "that in case physicians or surgeons, or their assistants, being appointed by the governor to attend said forces, shall refuse, delay, or neglect to go on said service, they shall individually forfeit the sum of £100."†

The foregoing extracts are all that I have been enabled to discover, relative to the medical profession, after a diligent examination of the colonial laws from 1691 to 1773, with the exception of the following. As it is the first law on our records in which a legislative attempt was made to regulate the practice of physic and surgery, it deserves particular attention.

The act is entitled "*An act to regulate the practice of physick and surgery in the City of New-York.*" It was passed in June, 1760, and the preamble gives the following exposition of the state of the profession. "Whereas many ignorant and unskilful persons, in physic and surgery, in order to gain a subsistence, do take upon themselves to administer physick and practice surgery in the city of New-York, to the endangering of the lives and limbs of their patients, and many poor and ignorant persons, who have been persuaded to become their patients, have been great sufferers thereby,"—it is therefore enacted, that after the publication of this act, no person whatsoever shall practice as a physician or surgeon in the city of New-York, before he shall have been first examined in phy-

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* Laws of New-York from 1691 to 1773, Revised by Peter Van Schaack 1774, p. 672.

† Laws of New-York, from 1752 to 1762, digested by William Livingston and William Smith, junr.—1762. vol. 2. p. 123.

sick and surgery, and approved of and admitted by one of his Majesty's council, the Judges of the Supreme Court, the Attorney General, and the Mayor for the time being, or by any three or more of them, taking to their assistance, for such examination, such person or persons, as they in their discretion shall think fit. If the candidate be approved, a certificate shall be given, signed by the examiners, allowing him to practise physic or surgery, or both, throughout the province of New-York.

The second section establishes a penalty of five pounds, with costs, against any person found practising without the above testimonial.*

The necessity of such a law must have been most evident, when we find what language the grave historian of New-York employs on this subject. "Few physicians," he observes, amongst us are eminent for their skill. Quacks abound like locusts in Egypt, and too many have recommended themselves to a full practice and profitable subsistence. This is the less to be wondered at, as the profession is under no kind of regulation. Loud as the call is, to our shame be it remembered, we have no law to protect the lives of the king's subjects from the malpractice of pretenders. Any man, at his pleasure, sets up for physician, apothecary, and chirurgeon. No candidates are either examined or licensed, or even sworn to fair practice."† It appears, by the dedication to this work, that it was published in 1756. The law regulating the practice was, as I have already stated, passed in 1760.

After the revolution, the legislature applied themselves with assiduity to the revision and enacting of laws, which the change from a dependent colony to an independent state required. The act to regulate the militia was revised in 1786, and in the third

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* Livingston and Smith, vol. 2. p. 198. The act, however, exempted from its operation all persons *already* practising medicine in the city.

† Smith's History of New-York, 1814, p. 326.

section, it was ordained, that physicians and surgeons, except in their respective professions and callings, should be exempted from military duty.* A similar provision is to be found in the acts of 1783 and 1801. In the session of 1809, it was, however deemed proper to omit this clause, and physicians and surgeons became in consequence liable to perform military duty. As an uncuccessful attempt was made in 1810, to re-insert the exemption, and as the militia law has remained unaltered in that respect, until the present time, we may consider it probable that no change will be made. The impropriety, and indeed injustice of this requisition, is so self evident, that I need not enlarge on it. As far as my information extends, New York is the first civilized state, either in this country or in Europe, that has demanded military duty from the medical profession.

The first act to regulate the medical profession was passed in March, 1792. In its operation, it is confined, like the one of 1760, to the city and county of New-York. Its preamble gives us also the same melancholy picture of the state of medical practice "*Many ignorant and unskilful persons presume to practice physic and surgery within the city and county of New-York to the detriment and hazard of the lives and limbs of the citizens thereof.*' The requisitions of this law are of a higher cast than those o. the previous one; and indeed the progress of improvement in this respect may be dated from the above year. They require 1. Studying with some reputable physician for the term of two years, if the individual has graduated at some College in the United States, or three years, if he has not. 2. An examination before the governor, chancellor, the judges of the supreme court, the attorney general, the mayor and recorder of the city of New-York, or any two of them, who are to take to their assistance any three respectable practioners, *with whom the examined person has not lived.* The certificate of this board constituted the license to practice, and no individual without

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* Jones and Varick's Edition of the Laws, 1789, vol. 1. p. 266.

these testimonials was allowed to have a legal demand for his services. This law, however, declares that its provisions are not to affect those who are already in practice; nor to prevent physicians from neighbouring states or counties being called in consultation; nor finally to effect those who have regularly obtained the degree of Doctor of Medicine.*

The above provisions, it will be observed, relate exclusively to the city and county of New-York. The progress of population and the wants of the community rendered it necessary, in a short time, to form regulations which should be binding and operative on the whole state. Accordingly, on the 23d of March, 1797, the first general act was passed, "*to regulate the practice of physic and surgery in the state of New-York.*† This document by implication explains some of the evils under which the state was labouring in consequence of the unbounded privilege, which all enjoyed of styling themselves medical practioners.

The first section is retrospective, and examines into the right of the individual to assume the title in question. It ordains, that from and after the 1st of October, 1797, no person *now practising physic and surgery, or either*, shall be allowed to continue to do so, unless he shall have produced satisfactory evidence, to one or other of the high officers enumerated in a former act, that he has practised physic and surgery, for the term of *two years next preceding the day aforesaid*, or shall in a similar manner, exhibit evidence of having studied medicine for the term of two years. Either of the magistrates mentioned above was authorized to grant him a certificate, and this was to constitute his license as he is directed to file it in the office of the clerk of the county where he resides; and the penalty for practising without such a filed certificate was declared to be twenty five dollars.

The second section relates to the student. After the same date, he was not allowed to practice, unless he exhibited to either of the above magistrates, a certificate from one or more

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* Greenleaf's Edition of the laws. vol. 2. p. 425.

† Greenleaf vol. 3 page 417.

reputable physicians or surgeons, with whom he had served his apprenticeship, stating that he had studied the profession for *the term of four years*, and that he was well qualified. The persons signing the certificate were to make oath to the same, and the magistrate was then to endorse on it a permit allowing the individual to practice. This was also to be filed in the Clerk's office. Graduates of Colleges were, however, allowed to complete their term of study in three years; and, again, all those who received the degrees of M. B. or M. D. from a medical institution were allowed to practice, on filing their diplomas. One or two clauses, are also added, directing the mode of proceeding, in case the physician signing the certificate was dead or non-resident. Proof was in such cases to be taken, and if it satisfied the magistrate, he was authorized to give the necessary permit: and, as the operation of this law was co-extensive with the state, the act of 1792 was repealed.

This law certainly reflects great honour on the framers of it. Its natural effect must have been to exclude many ignorant and presuming pretenders from the privilege of practising in a licentious manner; and, at the same time, it laid the foundation for an improved race of junior physicians, who from the increased period of study, and the duties incident thereto, were calculated to exalt the standard of medical character. It continued in operation for several years; and the amendments to it do not materially affect its general outlines. In 1801, when the laws of the State were revised under the care of Judges Kent and Radcliff, the act was re-enacted, without alteration, except that permission was given to a practitioner removing from a neighbouring State into this, to practice three months without a permit; probably to allow him time to procure the necessary certificate.* The first section, however, seems not to have been acceptable to *some practitioners*, since in 1803 a law was passed, relating to those who had been in practice before the 1st of March, 1797, which extended the time for filing the proof

* Kent and Radcliff's Revised Laws, 1822, vol. 1. p. 419.

of the period of study until January 1st, 1804.* By the previous act, it was restricted to the 1st of October, 1797 This was certainly a liberal provision on the part of the legislature. The unfortunate individual who was *surprised* by the appearance of the law, which questioned his right to exercise a responsible profession, was allowed nearly *seven years*, to show that he had properly qualified himself. An indefinite extension would have better suited the cases of several.

There are two or three laws which may be noticed at this time, from their connection with the subject in question. They relate to individuals, but notwithstanding deserve attention on many accounts.

The act of 1797 pressed hard on an individual named William Firly, a resident of Suffolk county. It appeared by a petition of the inhabitants of Brookhaven and other towns in that county, that he had performed several cures, particularly of scorbutic diseases. His situation, however, prevented him from obtaining a certificate, according to law, and they prayed for relief. The legislature listened to the petition, and directed the first judge of the county, (in case three reputable physicians practising there should state that he was capable and qualified) to grant him a certificate † This is the only instance on record, where the legislature have exercised their plenary powers in modifying the law of 1797, for the relief of an individual.

In the session of 1806, a law was passed, allowing a compensation to a somewhat notorious personage, named John M. Crous, for discovering and publishing a cure for hydrophobia. The sum of one thousand dollars was granted to him, on the condition, however, that if his remedy should, within the term of four years, prove deceptive and ineffectual, the above sum with interest should be refunded. The prescription was also ordered to be published throughout the state.‡

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* Webster's Editions of the laws from 1802 to 1812, vol. 3. p. 334.

† Webster, vol. 3. p. 639.

‡ Webster, vol. 4. p. 348.

Although the individual and the legislature in question have been equally the subject of ridicule, yet it can hardly be questioned, I apprehend, that this proceeding was praise-worthy, and deserving of general imitation. Canine madness is a disease of the most dreadful nature. It would appear, that human foresight can hardly guard against it. All and every one of the community are alike exposed to it. Is it not then a paternal act to throw open to the public, every possible avenue of escape from the awful termination that awaits the diseased?

It is well known, that after divesting the prescription of its quackery, there remains an important remedy, whose effects on the human system are not yet fully understood. I refer to the *acetate of copper*.*

I regret that I cannot equally commend an act of a subsequent legislature, by which they permitted "Peter Dawson, *for ten years*, to use and improve the skill he *possesses* in curing the malady called cancer, and directing that whenever he is employed for that purpose, he shall be entitled to recover fees for his services."† It is well understood that the active ingredient used by this individual, is a preparation of arsenic, and it is applied externally to the diseased part. The medicine itself is said to be patented. As to the originality of this remedy, a glance into Paris' Pharmacologia will be sufficient to convince the reader that it is destitute of foundation.‡ As to its efficacy, and even the safety of its application in many cases, let the experience of the medical public decide.

The law which regulated the medical profession from 1797 to 1806, enabled the student to commence practice on the certificate of his preceptors. No examination was required, and in this respect, indeed, the act in question was not so useful as

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* See some judicious remarks on the subject by Dr. Hosack in the American Med. and Philos. Register, vol. 1. p. 462.

† See the law in the Secretary of State's office, passed March 30th, 1809. It has never, I believe, been published except in the State Papers.

‡ Page 209. Can it be that the prescription of Davidson, mentioned in the note to this page, is the one in use here? and has this nostrum travelled to London?—"*Arsenious acid and powdered hemlock!!*"

that of 1792. We are now, however, approaching a period when the system of examination became a part of our statutes. In 1806 a law was passed, *to incorporate medical societies, for the purpose of regulating the practice of Physic and Surgery.** As this is the basis of the present Medical Code in this state, it deserves particular attention. I shall endeavour to condense its provisions, and, at the same time, omit such as appear foreign to the object in view.

It directs that the physicians and surgeons in the several counties of this state, *now authorized by law to practice*, shall meet on the first Tuesday of the ensuing July, and there, if their number was not less than five, form themselves into a medical society. These societies were again, by delegates, to constisute a state medical society, which was to meet annually at the capitol of the state.

These corporate bodies were authorized to appoint censors, whose duty it was to examine all students presenting themselves. They were thus made the sole power by which licenses to practice could be obtained, and the law declared, that all who attempted to practise without such law or diploma should be disqualified from collecting any debts on that account. The student was to exhibit testimonials of his having studied medicine for the term of *three years*, before the censors were allowed to commence the examination,† but always proceeding on the principle of improving the profession in future, and not pressing too hard on the peculiar circumstances of those now in practice or preparing, the law also allowed such as had commenced their studies prior to the first of January, 1805, to study *four* years, and then to be licensed according to the law of 1797, or rather of 1801. And that law was declared to be repealed on the 1st of September, 1806, at which time the present act was to go into operation. As to physicians coming from any other state or country, it declared

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* Webster, vol. iv. p. 537.

† In case a student considered himself aggrieved by the decision of a county medical society, he was allowed to appeal for examination to the State Medical Society.

with a spirit of liberality, that all persons duly authorized to practise by the law of such state or country, having a diploma from a regular medical society, should be allowed to practise in this state without molestation.

Various amendments to this law were, from time to time, found necessary. In April, 1807, an act was passed which contains several clauses, regulating the internal organization of the medical society of the state. It then ordains, that the penalty for practising without being authorized according to the above act, should be *five dollars per month*. This, however, was not to prevent a person from using or applying for the benefit of the sick, any roots or herbs, the growth of the United States.* In March, 1809, it was enacted, that the degree of Doctor of Medicine granted by the Regents of the University, should allow the person to practise physic and surgery—any law to the contrary notwithstanding.† Again, in May, 1812, the penalty for practising without license was increased to twenty-five dollars for each offence, and licenses are directed to be deposited in future in the Clerk's office.‡

On the revision of the laws in 1813, the above acts of 1806, 1807, 1809, and 1812, were consolidated, with the exception of those provisions which had become obsolete or nugatory. Accordingly, the revised law, passed April 10, 1813,§ is the authority to which physicians are to refer in all disputed cases connected with this subject.

In 1818 the legislature superadded to the requisites already in force, some additional ones. By the act of 1813, the student was required to study medicine three years, and at the end of that time, submit to an examination. By the present act, it was declared, that from and after the 1st of January, 1821, he should study *four years*, with, however, the following exceptions: One year might be deducted from the above, provided he had pursued classical studies for that period, after the age of sixteen; again, "*attendance on a complete course of lec-*

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* Webster, vol. 5. p. 114. † Webster, vol. 5. p. 565.

‡ Webster, vol. 6. p. 396.

§ Van Ness and Woodworth's Revised Laws, vol. 2. p. 219.

tures delivered by each of the professors, on all the branches of medical science, in either of the medical colleges or institutions in this state or elsewhere," might be accepted in lieu of one year's study. The examinations were to be continued, but no person was to be licensed, until he shall be of the age of twenty-one years.

It had also happened that students who were rejected by one county society, had presented themselves, and been admitted to practise, by another. This was now prevented by totally forbidding such a course of conduct, and an appeal to the State Medical Society was alone allowed. Licenses obtained in contravention of this provision are declared void.

By a reference to the law of 1813, it will be seen that the requisites demanded of a physician or surgeon coming from another state or country, are expressed in a vague manner. These were now defined with precision. A foreign practitioner is not allowed to practise in this state, until he shall have filed a copy of his diploma, from some college of medicine or legally incorporated medical society, with the clerk of the county, in which he resides, nor until he exhibits to the county medical society satisfactory proofs that he has studied medicine agreeable to the requisitions of this law.

The above extracts from the statutes, which have been in force at different times in this state, will give a fair view, I believe, of what has been done by our local government for the improvement of the profession generally. It will be seen that the requisites necessary for practising medicine have gradually been increased, until we arrive at the laws of 1813 and 1818. A definite period of study, and examination at the end of that period are demanded, while attendance on a full course of medical lectures is urged by a consideration which must always have great weight with the youth of our country, who have to be the artificers of their own fortunes.

I have omitted a notice of the regulations contained in these statutes respecting medical societies and the medical colleges, as they do not come within the scope of this essay. For the same reason, animadversions on various provisions in the ex-

isting laws, as well as suggestions for further improvement are also waived. This last is an inexhaustible subject, and deserves separate notice. My object has been to give a plain statement of what has been done—of *what is actually the law in this state;* and if these observations should by accident fall into the hands of a British practitioner, to show him how fallacious is that authority which informs him, that in the practice of physic, surgery, and pharmacy, in this country, "*no preparatory course of study, no testimonial of competency, no kind of examination, no particular qualifications, no diploma or license are required.*"*

Albany, May 1, 1822.

Art. III. *Case of* Uterine Hydatids: *Communicated to the Editors, by* William Moore, M. D. *New-York.*

Mrs. G.——— had missed her courses for two months, when she weaned her child supposing herself to be pregnant, as she had been very regular for some months previous, notwithstanding her having given suck. She was then seized with a flooding accompanied with some pain, and expected that an abortion was about to take place. The pains, however, soon abated, but the discharge of blood continued for six weeks, during which time she lost a great quantity of blood, and her strength was very much reduced. The uterus continued to increase in size all this time, notwithstanding the discharge of blood, for it was as large as in a woman four months advanced in pregnancy; it also felt hard, and she complained that it was sore to the touch, when pressed upon above the pubis. She was now seized with severe labour pains, and the flooding was greatly increased, so much so, that she fainted and appeared to be in danger of sinking under it. The usual remedies to restrain uterine hœmorrhage were used, but with little effect.

As she had endured a number of severe pains, it was thought

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* See Quarterly Review, vol. 10. p. 509. American Edition, *Review* of *Inchiquin's Letters.*

advisable to ascertain the state of the mouth of the womb. Upon introducing the finger into the vagina, it was found to be filled with coagula, and the os uteri was somewhat dilated with something hanging out of it, which felt different from coagulum, but what it was I could not ascertain; I therefore determined to introduce my hand into the vagina, and make an attempt to empty the womb, by bringing away the substance, whatever it might be, which was protruding from its mouth. When I passed my hand into the vagina, it pressed away a large quantity of coagula; and taking hold of the substance at the mouth of the womb, I brought away a cluster of hydatids. The os uteri was sufficiently dilated to admit two fingers: I introduced the forefinger into the cavity of the uterus, and found it filled with the same kind of substance; I broke it up with my finger and brought away another considerable portion.

The pain and irritation, occasioned by introducing the hand into the vagina, increased the force of the pains and moderated the flooding; it was, therefore, determined to leave the emptying of the uterus to the labour pains, which in the course of three hours forced away about four pounds of this curious substance. It consisted of clusters of transparent globules, about a quarter of an inch in diameter, and containing a colourless fluid. These globules were enveloped in a semitransparent gelatinous substance of a reddish cast, approaching somewhat to a flesh colour, and of considerable tenacity. As soon as the uterus was emptied the pains ceased, the flooding abated, the discharge stopped gradually, and the woman, by slow degrees, recovered her former health.

This case was the first of the kind I had ever seen. It occurred in September, 1797. Since that time I have met with but one other case, which happened in October, 1804, to a Mrs. W———, whose symptoms were very similar to those of the above case, and the event was equally fortunate, for the lady recovered perfectly, and had several children afterwards.

Art. IV. History *of the* Yellow Fever *as it occured at Knowle's Landing, Connecticut, in a letter to* David Hosack, M. D. *By* William Tully M. D. *of Middletown, Connecticut.*

Middletown, (Con.) February 1st, 1822.

Sir,—In large maritime cities, where there is free and constant intercourse with foreign ports, where of necessity there are great accumulations of filth from various causes, and where so small a portion of the inhabitants are personally acquainted, it must always be attended with considerable difficulty to ascertain, with precision, what pestilential diseases are of foreign origin, and what are domestic. But on the other hand, in small towns, and country villages, where there is but little intercourse with strangers, where there are no local causes of disease, and where the inhabitants are all known to each other, and acquainted with each other's concerns, there can be no difficulty in settling questions of this sort, with sufficient certainty to satisfy every rational mind. Indeed, under such circumstances, there can be no variation in sentiment, except with the few, who imagine that they cannot be independent, unless they differ in opinion from the great majority of men of common sense. With such persons arguments are useless, and the strongest proof produces no conviction.

Under these impressions, I have always believed, that the casual occurrence of yellow fever in the small and healthy ports of New-England, particularly of those on the river Connecticut, afford the most incontrovertible evidence of its foreign origin that is perhaps to be found in the whole world. In these places, intermittents and bilious remittents, the endemics of southern climates, are unknown, except in a few instances, in persons who have recently arrived from places where such diseases prevail. In short, we have no disease that could possibly be suspected of being yellow fever except a few sporadic cases of putrid fever, which none could mistake but the superficial, or those whose theoretical notions lead to such a generalization as confounds all distinctions of species in disease. The able report of Dr. Beck, upon the fever in

Middletown, in 1820, to the accuracy and fidelity of which upon every essential point, I am happy to bear the fullest testimony, it is believed, will completely justify the foregoing remarks. An account much more in detail, and which is thought to contain some additional evidence upon the subject, has long been prepared for the press, and will, one day, be given to the public. Upon this topic, I have now only to add, that at least as many cases traceable to the same vessel occurred elsewhere, the same season, as at Middletown.

I have been lately led to investigate the circumstances of the Yellow Fever in a neighbouring town, upon this river, which give additional confirmation upon this point. Among those at all acquainted with the facts, there was never a question respecting its origin.

As this is a subject upon which you, sir, are publicly known to have taken so much interest, and which you have contributed so much to elucidate, I have concluded to address the following statement to you, entirely submitting its *final disposal* to your discretion. I do this under the impression that the facts which ensue have never been published, as I have not noticed any reference to them in the controversy upon the great question of the origin of the yellow fever.

The village of Knowle's Landing, a part of the parish of Middle Haddam in the town of Chatham, is situated on an uneven, irregular, and rather steep declivity, on the east bank of the Connecticut, about six miles below Middletown. At the period referred to, it must have contained about thirty houses, and nearly two hundred inhabitants, and was then, as it now is, remarkable for its salubrity and exemption both from endemic and epidemic diseases. At that time, its inhabitants usually employed two or three vessels in the West-India trade.

In the month of August, 1796, during the prevalence of the usual general health in the village, the brig Polly, Russel Doan master, owned by Bulkley and Russel Doan, arrived from Cape St. Nicholas Mole. Her outward cargo consisted of oats and other grain, which was sold for cash, so that she returned merely in ballast, and in as cleanly a state as such vessels usually are after such a voyage, On her homeward passage, one

of her crew, by the name of Mayhew Tupper, died on board, with Yellow Fever. The clothes which he wore, while sick, were thrown overboard, though a sail upon which he lay, when he died, was retained. The vessel subsequently underwent a sailor's washing, which in this instance consisted in scrubbing with cold water and the application of vinegar. On the arrival of the Brig at this Landing, Newel Hurd, a young man of about eighteen, and John Ranney, were employed to assist in clearing her out. They were known to handle the sail on which Tupper died. At the same time, Sarah Exton, wife of one of the crew, and Elizabeth Cook, who lived in the same house, were employed in washing some of the sailors' clothes. A few days afterwards, these four persons were attacked with yellow fever. In about five days, viz. on the 29th of August, 1796, Hurd died, and within twelve hours, Ranney, and Sarah Exton. The alarm in the village was already so great that Sarah Exton was left alone in the night, and was found dead in the morning, with her infant child at the breast. Elizabeth Cook was soon added to the number of victims, and in quick succession, the infant child of Sarah Exton, Lucinda Norton, a tailoress, a member of the same family, who had been employed in repairing some of the sailor's clothes, and Elizabeth and Rebecca Carey, daughters of Elizabeth Cook, were taken sick, and survived but a few days.

The whole of these cases commenced and terminated within the period of a fortnight. Some time during their existence Gersham Lord, who acted in the capacity of clerk to one of the owners of the vessel, and who had been on board of her, but had no intercourse with the sick on shore, was taken with the same disease, and after a short, but severe illness, recovered. Beside this, there were two or three other imagmary, or at most, light cases, among those who had intercourse with the vessel or the sick, which soon recovered.

Some time while the brig was lying at this Landing, but whether during the existence of any of the other cases, or subsequently, I have not ascertained, two sons of William Dixon, Esq. of the town of Chatham, about seven miles above, passing along the river in a boat, in the night, hauled along side the

brig, and slept till morning in the cabin. Soon after they reached their father's both sickened with yellow fever. One died, but the other recovered.

So unaccustomed were the inhabitants to such a rapid and fatal disease, that the whole village was panic struck. After the three first deaths, Dr. Bradford, an old physician, resident in the place, and Drs. Hollister and Thacher, two young men who were candidates for business, departed precipitately, and did not return till all traces of the disease had disappeared; and so many of their customary employers followed their example, that only five persons had firmness and humanity sufficient to remain, and take care of the sick, and bury the dead.

To the principal individual of this small band of philanthropists, Ralph Smith, Esq., I am chiefly indebted for the foregoing facts. They have, however, been confirmed in detail, by Mr. Nathaniel Doan, brother, as I believe, to one of the owners of the brig.

I do not attempt to particularize the symptoms of the disease, as there was never the least question with respect to its nature. Mr. Smith had frequently been in the West-Indies, and had had opportunity to see much of yellow fever; and there were other seafaring men who were able to identify it with the scourge of the tropics.

The physicians who attended the latter cases, were Dr. W. B. Hall of Middletown, and Dr. J. Richmond of a neighbouring parish in Chatham. They are neither of them now living; but it is universally known that they had no doubts upon the subject.

It ought to be observed, that though the subsequent autumn and winter were uncommonly dry, yet there was nothing peculiar in the weather of August. Perhaps the month might have been considered as rather warmer and drier than usual, but it was by no means prominently so. It was, on the whole, one of our finest seasons, and the health of the adjacent country was as good as it ever is. Simple Fevers, Dysenteries, and Choleras did not prevail at all.

Thus it appears, that from this single vessel, there originated, unequivocally, eleven cases of yellow fever in the town of Chatham, nine of which died—as adequate a number to prove the importation of the disease, as if it had been eleven thousand—a fact. in this point of view, as irresistible as any on the records of medicine.

I have only to add, that there has been scarcely a season, for the last five-and-twenty years, in which individual instances of yellow fever have not occurred on the river, though the greatest number that has happened, at one time, has been at Hartford, at Middletown, and at Knowle's Landing; and with the exception of a few theorists, there never has been a doubt of its foreign origin. *With us* it is, usually, even much more difficult to trace the small pox to any evident source than it has hitherto been to account, satisfactorily, for the introduction of yellow fever. It will, of course, be understood, that I do not mean to include in this remark, those sporadic cases of disease which are occasionally produced, in particular seasons, by foul cellars, and decaying vegetables, especially by putrid cabbages. That these instances are as malignant, as rapid, and as deadly as yellow fever, I make not the least question; and, if we may credit reports, have been sometimes attended with a yellow skin, but are, nevertheless, upon every principle of discrimination adopted in other cases, to be considered as essentially distinct, as they lack all the true pathognomonic symptoms, and are, in all probability, only more violent cases of genuine putrid fever.

In the foregoing, it will be noticed, that there is nothing said upon the subject of the communication of the disease from one individual to another on shore. In this part of the country such an occurrence is extremely rare. No decided instance of this sort has ever fallen under *my* observation, except in Middletown, in 1820. It is believed that the cases at Knowle's Landing are all to be accounted for in some other way, except perhaps that of the infant child.

I cannot forbear adding one circumstance still further, which tends to show the salubrity of the situations, and the

great degree of health of the towns upon the river Connecticut, which is the well known fact, that of all that are born, one sixth, or at the very farthest, one seventh survive the age of seventy years.

Yours sir, very respectfully,

DAVID HOSACK, M. D. WILLIAM TULLY.

ART. V. A REPORT *to the New-York Board of Health, concerning the nature and origin of the Malignant Fever in Middletown, Connecticut. Presented on the* 17*th of July,* 1820. *By* JOHN B. BECK, M. D.

In compliance with the instructions received from the New-York Board of Health, to proceed to Middletown, Connecticut, for the purpose of inquiring into the nature and origin of the fever which had been reported to prevail in that city, I left New-York by the first conveyance after my appointment, and reached Middletown on the 5th of July. As soon as possible after my arrival, I presented to his honour the Mayor, a letter addressed to him by Mr. Jay, the President of the New-York Board, and which informed him of the object of my visit to Middletown. He had no sooner read the letter, than he communicated to me, in the most unreserved and candid manner, every fact in his possession which could tend to aid me in accomplishing the designs of my mission, adding at the same time, that neither himself nor the Board of Health of Middletown, wished to conceal any thing that might inform the public of the actual state of the health of the city. In addition to this, I held interviews with all the physicians of the city, who had attended upon the different cases of fever. From these sources I obtained most of the facts embraced in the subsequent report.

In a former communication to the Board, I stated that thirteen cases of malignant fever had been reported to the Board of Health at Middletown, since the third of June last; nine of which were in the city, and four at a place called the Upper

Houses, four miles north of it. Of the whole number seven proved fatal.

On inquiring of the physicians concerning the character of the fever, Drs. Miner and Tully stated that it was entirely different from the ordinary cases of fever occurring in that city, and that it was precisely similar to what they had been in the habit of seeing occasionally on board of vessels arriving from the West-Indies, and our southern ports. Dr. Gilbert, who has resided in the West-Indies, unhesitatingly pronounced the case of Mrs. Cotton, whom he attended, to be the malignant fever of the tropics.

On inquiring into the particular symptoms, Dr. Tully, who had been the physician to all the cases except five, and had also seen three of these previous to death, mentioned the following as the most prominent, and as characteristic, in a greater or less degree, of all the cases :—The patients were seized suddenly with chills, violent in degree, but of short duration; pains in the back of the head and neck, extending down the spine to the small of the back and legs; the countenance presented an appearance of great anxiety and dejection. In most of the patients the eyes, at the very onset of the attack, were of a dull, muddy, reddish colour, and towards the close they became yellow; the region of the stomach was uniformly the seat of peculiar distress; in some instances, the patients complained of a burning sensation in it; at others, of a heavy load oppressing them, and at others again, of a sense of vacuity, producing great uneasiness. This state of the stomach, Dr. Tully informed me, he had never seen in any case of typhus fever, which is the ordinary fever in that vicinity. In addition to this, the stomach was uniformly irritable, showing itself in frequent vomiting and retching, especially on taking any liquids. In several of the cases a dark coloured matter was thrown up. The skin was slightly moist, and in none of the patients hotter than natural. On applying the hand to the surface, a slight stinging heat was first felt, but afterwards it was found to be cooler than the temperature of the hand. In seve-

ral of the cases the skin had the yellow tinge, and in one it was of a dark mohogany colour. The tongue varied in its appearance; in some it was natural and moist, in others covered with a slight greyish slime; in others again, a brown crust appeared upon it towards the close of the disease. In all the cases which Dr. Tully saw, the tongue was very red at the close of the disease. The thirst at the commencement was very great, and continued no longer than about twenty-four hours, after which they were indifferent about taking liquids. The pulse in the majority of instances beat from 80 to 90 in a minute—in a few it was as low as 50, and in every case entirely destitute of hardness and strength. The bowels in the early stages were generally very torpid, occasionally lax. In some cases coma and delirium were present—in others the integrity of the mental faculties was preserved to the last.—A tremor, unattended with coldness, was a prominent symptom. After the first twelve, twenty-four, or thirty-six hours, an evident remission of all the symptoms took place, so much so, that many of the patients said they were perfectly well: after this, great prostration of the sanguiferous system, together with an aggravation of all the symptoms, ensued. Muscular strength continued to the last, especially in some of the worst cases. In many cases bloody discharges occurred from the nose and the mouth; and speedily after death, putrefaction commenced, and bloody sanies issued from different parts of the body.

Such are substantially the prominent symptoms as detailed to me by Dr. Tully, and the observations of this very intelligent physician were in every respect confirmed by Dr. Miner, who visited the cases in consultation with him. As there could be no doubt concerning the nature of the disease, I proceeded next to inquire into its probable origin, and subsequent extension; and on this point I have been industrious to collect all the facts, that may shed any light upon a subject of such deep interest to the community at large. And such as I found them supported by the best testimony I could obtain, I shall frankly communicate.

1. As early as the 3d of June last, a seaman, by the name

of Orrin Fargo, was brought into Middletown sick with malignant fever, from on board the sloop Antelope, of Killingworth, a coaster between New-York and Connecticut. Dr. Tully attended him, and was informed that this was the seventh day since he was first taken sick. He died with black vomit on the 7th of June. From a statement of the captain of the Antelope, made to Dr. Tully and myself, it appears that Fargo had arrived at New-York from Savannah, in the schooner Milo, on the 25th of May. On the Saturday following, he had overworked himself on board the schooner, and in the evening was taken sick. He then took passage on board the Antelope, for Middletown, where he belonged.

2. About three days before Fargo died, Daniel H. Vail, captain of the sloop Antelope, in which Fargo was passenger, was taken sick with fever of the same character. The symptoms in this case were milder than in the former, and the patient recovered; but both Drs. Miner and Tully considered them so decided, that if even the case had occurred singly, and without any other succeeding it, they should have called it a case of the same fever which appears on board of vessels from the south. Capt. Vail told me that his sloop lay in Burling-slip for two weeks previously to his leaving New-York.

It will be observed that both these cases occurred anterior to the arrival of the brig Sea-Island.

3. On the 16th day of June, Wm. Harrington, tide-waiter, was brought into Middletown, from on board the brig Sea-Island, with malignant fever; on the following day he died, that being the 5th day after he was taken down. Dr. Tully saw him for the first time on the 4th day of the disease, and he had then the dark yellow hue of the skin; his eyes were yellow, and he vomited continually.

As the circumstances connected with the vessel on board of which Harrington was taken sick, must be deemed of much consequence in tracing the origin of this and the subsequent cases that occurred, I shall now relate all the material facts concerning her, which I obtained from a careful examination of Mr. Williams, the mate of the vessel. The brig Sea-Island

were at that time 7 girls and 3 men employed in it. Such were the circumstances at the factory when John Wild, one of the men, was taken sick. This was the 7th case.

7. John Wild, taken sick on the 19th of June, and died on the 25th. He had redness and wildness of the eye—yellow skin —vomited a dark matter, and on the last day brought up some blood. On inquiring of the superintendant of the factory where Wild had been previously to his attack, we found, that two days before, he had been on board of a vessel from the West Indies, called the brig Defiance of Middletown, and then lying alongside a wharf about two miles below the factory. This brig had arrived here the 15th of June, and sailed again on the 19th. While in the West-Indies, one of her men was sick with yellow fever. She went up the Oronoko, and brought home a cargo of hides, tallow, molasses, &c. The vessel is said to have been clean—between her and the shore there was a constant intercourse—numbers of people went daily aboard of her. I cannot learn that Wild was aboard of the brig Sea-Island, though at the time he was taken sick she lay opposite the factory, where she had grounded. It was while she lay here that Harrington was taken from her and carried down to Middletown.

8. Abigail Treat, a girl employed at the factory, taken sick on the 21st of June, two days after Wild was attacked, and with the same symptoms—red eyes—great distress about the præcordia, together with irritability of the stomach; brought up the same kind of matter. She had been at the factory for one month. She recovered; the fever coming to a crisis on the seventh day.

9. Rhoda Clark, another of the girls working at the factory, where she had been only three days, was taken sick on the 23d of June. She was immediately removed to her father's, about a mile and a half south of Middletown, where Dr. Tully attended her. She had the red and muddy eye—great præcordial distress—coma and decided black vomit. She died on the 27th.

10. Catherine Hubbard, another girl at the factory, where she had been one week, was taken sick at the same time with Rhoda Clark. Symptoms very similar to those of Abigail Treat. She recovered.

It does not appear that any of the three girls who were sick at the factory had been on board of any vessel. On the Sunday previous, some of them had been down to Middletown, but at this time the Sea-Island lay four and a half miles above that place.

During Wild's sickness, the superintendant informed us, that the girls occasionally went in to see him, and that they slept in an adjoining room, with only a wooden partition between them. Only one circumstance more concerning the factory is worth noticing, and this is, that a state of invariable general health has always prevailed about that place.

The three remaining cases occurred in the city of Middletown.

11. Mrs. Childs was taken sick the 22d of June, and died on the 29th. Concerning the nature of this woman's disease, it may be proper to state, that there was a difference of opinion between some of the physicians. Dr. Tracy, the attending physician, supposed that she had had epilepsy and jaundice, while Dr. Tully, who saw her on the 28th, pronounced it a case of malignant fever. A relation of a few of the prominent symptoms, will enable the reader to form an opinion for himself on the subject:—pains in the head, back and limbs—great præcordial distress—irritability of the stomach—cool skin—moist tongue—soft pulse—yellow skin—coma.

Mrs. Childs lived in a house in Ferry street, about ten rods from the water's edge, and nearly opposite lay the brig Sea-Island. It does not appear that any clothes from the brig were washed by Mrs. Childs, nor does she keep a sailor's boarding-house. I shall only add, that on the same day in which she was taken sick she had worked in her garden under a hot sun.

12. Mrs. Cotton lived in a house a few rods south of Mrs. Childs. She was taken sick on the 26th of June, and died on the 5th day of the disease. Dr. Gilbert was her physician, and

left Saybrook about the 1st of December, 1819, and sailed for St. Bartholomews; from thence she returned to Wilmington, N. C. where she took in a miscellaneous cargo of lumber, corn, flour, &c. and then returned to the West-Indies, to St. Jago de Cuba. While there, two of her men died of yellow fever, and on the homeward voyage, a third fell a victim to the same disease. Nearly all the hands were also indisposed during the passage. On inquiring what was done with the clothes, &c. of those who died, he stated, that all the clothes which had been worn by the men during the sickness, together with their bedding, were immediately thrown into the sea. Some of the clothes of the second who died, but which he had not worn, were immediately washed very thoroughly, and then put up in a chest.

In the beginning of June the brig arrived at Saybrook, at the mouth of the Connecticut river. Here Harrington, the tide-waiter, went aboard of her, and on Saturday she came up to Middletown and anchored in the middle of the river, opposite the city. On Monday she unloaded and sent ashore part of her cargo, which consisted chiefly of sugar and molasses. At noon she weighed anchor and proceeded up the river. The next morning Harrington was taken sick, and remained on board until the day previous to his death. On the night before he was taken sick he indulged in drinking and smoking to excess.

While the vessel lay opposite the city, I have it in evidence that there was an unrestrained intercourse between her and the shore. Several persons went on board of her, none of whom have been taken sick, except the son of Harrington. On Sunday all the sailors came ashore, and remained for half the day. It does not appear that any of them went to Mrs. Childs' or Mrs. Cotton's, although they landed at no great distance from the place where these women lived, nor could I learn that any clothes were sent ashore to be washed. While the vessel lay off the town, two of her hands were discharged—a black man, who went immediately into the country, and a lad who took his clothes and bedding with him and went to his mother's,

who lived under the same roof with Mrs. Bayley, who was afterwards taken sick.

4. Daniel Harrington went on board the brig while she lay opposite the town, and remained there during the whole of Sunday and the subsequent night. On Monday morning he left the brig, and was taken sick the next day with malignant fever. This patient recovered.

It may be proper to state that Wm. Harrington's house, in which both he and his son were sick, is situated in a distant part of the town from that opposite to which the brig lay. None of the attendants were taken sick.

5. The next case that occurred was that of Samuel Knight, a seaman, who had just returned from sea. He was taken on the 15th of June, and had previously been aboard the Sea-Island, though he did not remain there more than five minutes. He recovered.

6. Lucy Bailey was taken on the 16th inst. She lived in a house near the river, in Union-street, at some distance from Mrs. Childs' and Mrs. Cotton's. It will be recollected that in the same house lived the mother of the lad who had been discharged from the brig. His clothes were washed here, and his bedding put into the barn. Mrs. Bailey, however, told Dr. Tully she had nothing to do with the clothes. She recovered.

The next four cases were those at the Upper Houses. The occurrence of these cases at this place is so very singular, that it will be necessary to speak particularly of their locality, and of the circumstances attending them. They all took place in a cotton factory about four miles from the centre of the city, situated in a pleasant valley, and without any houses in the immediate neighbourhood. The distance between this and the river is perhaps about half a mile. Dr. Tully accompanied me to this place, and on visiting the factory we found nothing that was in the least offensive. From its situation, too, one would suppose that it must enjoy a constant and free circulation of air. It may be deemed by some of consequence to state, that the factory had been closed for some time, and that they commenced working in it only a short time before. There

were at that time 7 girls and 3 men employed in it. Such were the circumstances at the factory when John Wild, one of the men, was taken sick. This was the 7th case.

7. John Wild, taken sick on the 19th of June, and died on the 25th. He had redness and wildness of the eye—yellow skin—vomited a dark matter, and on the last day brought up some blood. On inquiring of the superintendant of the factory where Wild had been previously to his attack, we found, that two days before, he had been on board of a vessel from the West Indies, called the brig Defiance of Middletown, and then lying alongside a wharf about two miles below the factory. This brig had arrived here the 15th of June, and sailed again on the 19th. While in the West-Indies, one of her men was sick with yellow fever. She went up the Oronoko, and brought home a cargo of hides, tallow, molasses, &c. The vessel is said to have been clean—between her and the shore there was a constant intercourse—numbers of people went daily aboard of her. I cannot learn that Wild was aboard of the brig Sea-Island, though at the time he was taken sick she lay opposite the factory, where she had grounded. It was while she lay here that Harrington was taken from her and carried down to Middletown.

8. Abigail Treat, a girl employed at the factory, taken sick on the 21st of June, two days after Wild was attacked, and with the same symptoms—red eyes—great distress about the præcordia, together with irritability of the stomach; brought up the same kind of matter. She had been at the factory for one month. She recovered; the fever coming to a crisis on the seventh day.

9. Rhoda Clark, another of the girls working at the factory, where she had been only three days, was taken sick on the 23d of June. She was immediately removed to her father's, about a mile and a half south of Middletown, where Dr. Tully attended her. She had the red and muddy eye—great præcordial distress—coma and decided black vomit. She died on the 27th.

10. Catherine Hubbard, another girl at the factory, where she had been one week, was taken sick at the same time with Rhoda Clark. Symptoms very similar to those of Abigail Treat. She recovered.

It does not appear that any of the three girls who were sick at the factory had been on board of any vessel. On the Sunday previous, some of them had been down to Middletown, but at this time the Sea-Island lay four and a half miles above that place.

During Wild's sickness, the superintendant informed us, that the girls occasionally went in to see him, and that they slept in an adjoining room, with only a wooden partition between them. Only one circumstance more concerning the factory is worth noticing, and this is, that a state of invariable general health has always prevailed about that place.

The three remaining cases occurred in the city of Middletown.

11. Mrs. Childs was taken sick the 22d of June, and died on the 29th. Concerning the nature of this woman's disease, it may be proper to state, that there was a difference of opinion between some of the physicians. Dr. Tracy, the attending physician, supposed that she had had epilepsy and jaundice, while Dr. Tully, who saw her on the 28th, pronounced it a case of malignant fever. A relation of a few of the prominent symptoms, will enable the reader to form an opinion for himself on the subject:—pains in the head, back and limbs—great præcordial distress—irritability of the stomach—cool skin—moist tongue—soft pulse—yellow skin—coma.

Mrs. Childs lived in a house in Ferry street, about ten rods from the water's edge, and nearly opposite lay the brig Sea-Island. It does not appear that any clothes from the brig were washed by Mrs. Childs, nor does she keep a sailor's boarding-house. I shall only add, that on the same day in which she was taken sick she had worked in her garden under a hot sun.

12. Mrs. Cotton lived in a house a few rods south of Mrs. Childs. She was taken sick on the 26th of June, and died on the 5th day of the disease. Dr. Gilbert was her physician, and

he called it a decided case of malignant fever. Mrs. Cotton attended upon Mrs. Childs during her sickness. Neither Mrs. Cotton nor Mrs. Childs had been aboard of any vessel.

13. Joseph Simmons, taken on the 26th of June, and died in five days after. This case was represented by Dr. Tully as one of the most malignant of the whole. On inquiring into the history of this case, I found that while the brig lay opposite the city, Simmons was at Colchester, about twenty miles distant; and that when he arrived at Middletown, the vessel had alreaready passed up the river. He lived in Ferry-street, only three or four rods N. W. of Mrs. Childs'. On the same day on which he was taken sick, he swam once or twice across the river.

Such is the detail of the circumstances connected with the several cases of fever that were reported. In looking around the city for any domestic cause which might have produced them, I found none that was adequate. Middletown is distinguished for the salubrity of its situation and the health of its inhabitants. It is built on the slope of a beautiful hill, and most of the houses are at considerable distances from each other. The freest circulation of air pervades every part of it. The town is cleanly, and even along the river and wharves there are no accumulations of filth of any kind. The ship yard in the neighbourhood of Mrs. Childs' house (about which something had been said to induce the belief that it was very filthy) was uninclosed, and had nothing in it but a small quantity of timber scattered over its surface. There was nothing about this place which even the most distempered imagination could convert into a source of infection. The same will apply also to a distillery of rum in the neighbourhood. Indeed, nothing seems capable of explaining the facts on this subject, but to admit that, with the exception of the first two cases, which occured anteriorly, the existence of malignant fever, in Middletown was owing to the presence of this vessel from the West-Indies. Otherwise it is unaccountable why, in a place where there is a total absence of all the causes contended for by those who maintain the doctrine of domestic origin, and at a season, too, which is there usually the healthiest in the whole year, so many ca-

ses of malignant fever should occur so rapidly in succession. Besides, upon any other principle, it must seem marvellous that the march of disease should proceed with the progress of this vessel up the river. She lay opposite to Middletown, and the fever followed—she lay opposite the factory, and the fever made its appearance—she proceeded to Hartford, and there we have the official report of the physicians to the Board of Health, that at least one case of malignant fever occured, which was referrible to this vessel. It is true that all the cases cannot be distinctly traced. This, however, is immaterial. The fact, that somehow or other the disease was connected with the presence of this vessel, stares us too broadly in the face to admit of a denial; and it shows, beyond all controversy, the propriety of those quarantine regulations, which by some are ridiculed, and by others are considered so unjust and oppressive. And this seems to me to be a fair conclusion, from the facts admitted by both the contending parties on the origin of Malignant Fever.

I have thus presented to the honourable the Board of Health whatever of well ascertained fact I obtained while at Middletown, and which I conceived to have the least bearing upon the elucidation of so important a subject, without regard to preconceived opinions or conflicting theories.

I must again make my acknowledgments for the uniform politeness of the mayor and physicians of Middletown. To Doctors Miner and Tully I owe a large debt of gratitude, for the liberality with which they communicated to me all the facts in their possession, on the subject of my mission. Dr. Tully accompanied me to all the places which I found it necessary to visit, and the labour of a difficult and delicate undertaking was thus rendered comparatively light.

All which is respectfully submitted.

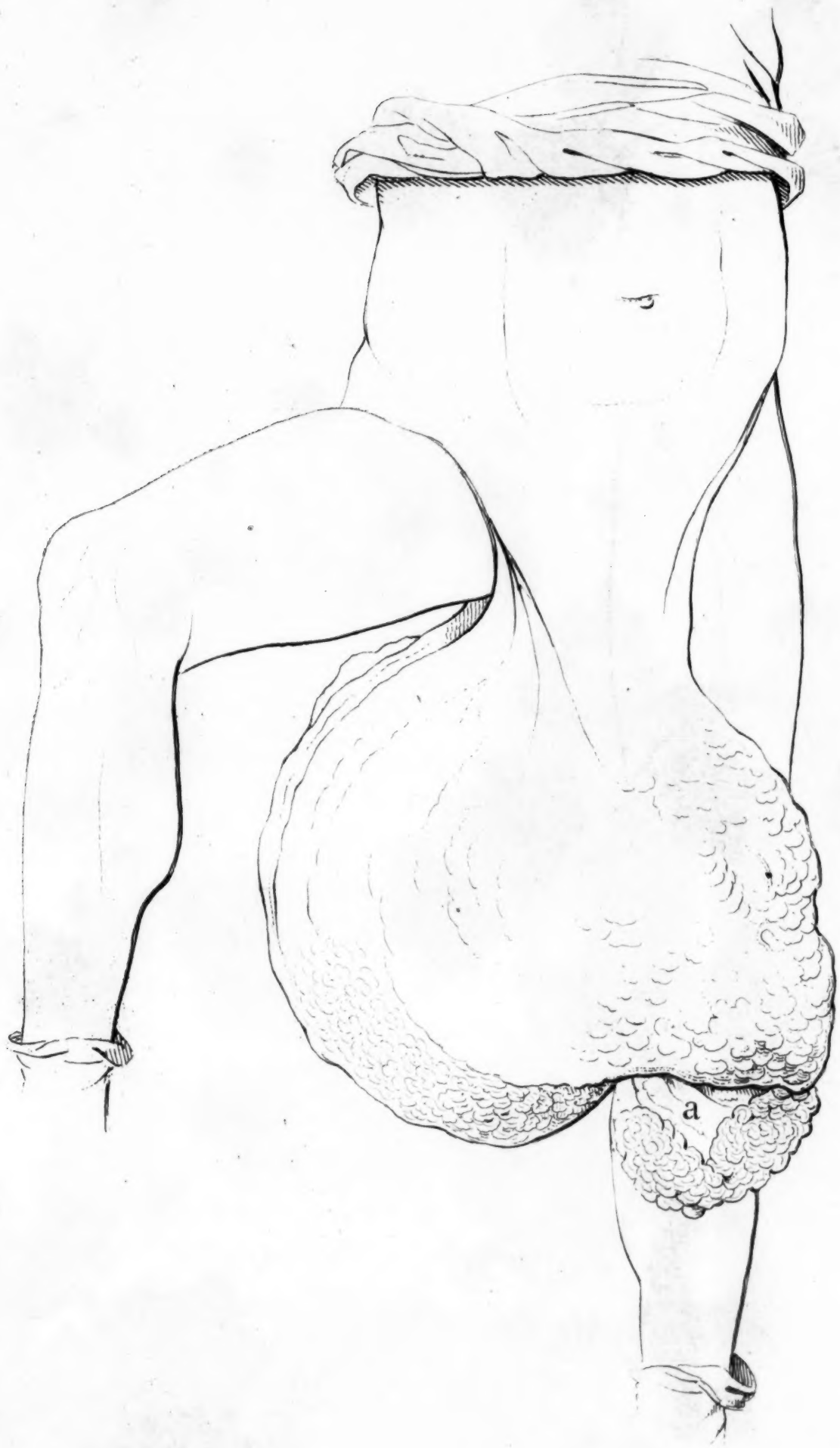
JOHN B. BECK.

ART. VI.—AN ACCOUNT *of an Operation recently performed by* PROFESSOR DELPECH, *Surgeon in Chief of the University of Montpellier, France.* Communicated by P. S. TOWNSEND, M. D., of New-York.

THE following description and engravings of a remarkable tumour, successfully operated upon by Professor Delpech, of the University of Montpellier, were presented to me by that gentleman during my late visit there. Though the reputation of M. Delpech requires no eulogium, American physicians will feel under peculiar obligations to him for having permitted the beautiful delineations, which accompany the text, to be first made public on this side the water; nothing but a notice of the operation having hitherto appeared in the European journals.

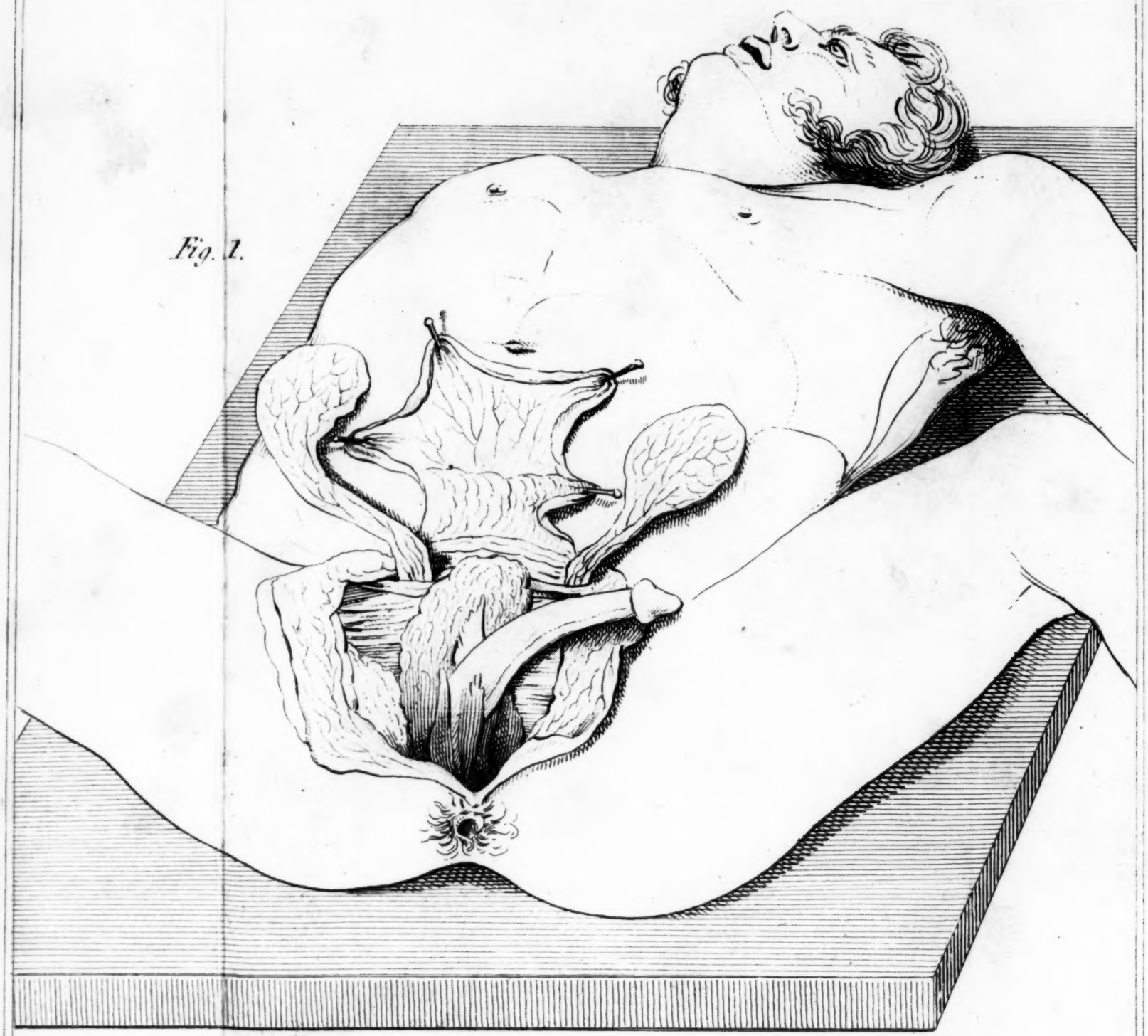
"AUTIER, a native of Perpignan, a country where symptoms of leprosy and elephantiasis are still observed, was born of a vigorous constitution, and enjoyed good health up to the age of puberty. During his intercourse with women he received several excoriations at the orifice of the prepuce, which were taken for venereal chancres. A mercurial treatment being adminstered, and this symptom not disappearing, he abandoned his profession of baker, and during the late war with Spain enrolled himself in the gendarmerie employed on the confines of the Spanish territory. The occupation of riding produced a considerable engorgement of the prepuce, which extended itself, by degrees, to all the sheath of the penis and to the scrotum. This infirmity caused him to quit the military service, and soon after even the exercise of his profession, which it appears he had resumed. Six years after, the tumour had acquired the volume which is seen in Plate I.

"The patient was admitted into the chirurgico-clinical department of Montpellier, where Professor Delpech recognised in the tumour the characters of elephantiasis; and having determined that the testicles and the penis were sound, and that



View of the size of the Tumour. — The urine, which passed involuntarily, and the ejections of semen were both made through the orifice **a**, *which corresponded to the orifice of the prepuce.*

Fig. 1.



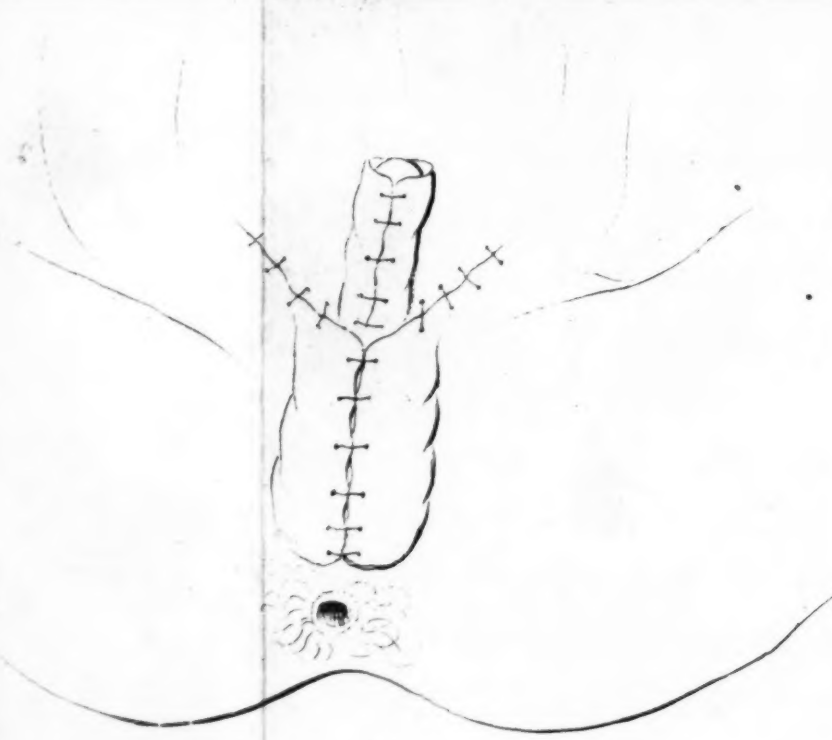


Fig. 2.

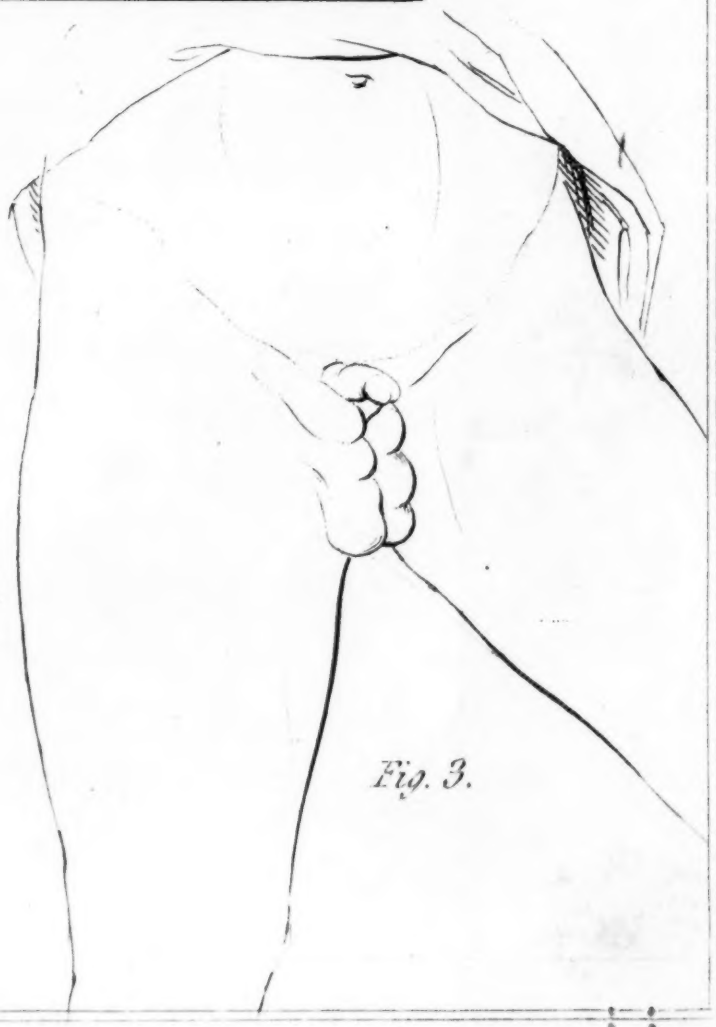


Fig. 3.

there were no other symptoms of the same affection, he conceived the following operative plan :

1. To make two semicircular flaps with the sound skin on the two sides of the neck of the tumour, each one commencing at the corresponding inguinal ring, and ending before the anus.

2. In the interval of these two flaps to form a third with the sound skin of the anterior portion of the neck of the tumour.

3. To uncover, right and left, the testicular cords ; to ascertain if there was any hernia ; to follow then the course of the cords in the tumour down to the testicles ; to isolate these last with their cords, and to place them upon the abdomen.

4. To slit open from below up, the swollen sheath as far as the glans ; then to dissect and denude the penis, and to place it on the abdomen.

5. To take away all the tumour in dissecting the perineum.

The operation is seen accomplished in plate II. figure 1. It lasted fifty minutes, and the tumour weighed sixty pounds.

The testicles were enveloped in the two lateral flaps, which went to form a new scrotum. The penis was enclosed in the middle flap, which formed a new sheath. The appearance of the sutures, and their relative position, is seen in plate II. figure 2.

In six weeks after every thing was cicatrized. The only inconveniences which followed the operation were a deep seated spasm, relieved by two doses of opium the same day of the operation, and a slight fever the five following days.

A small part of the anterior flap perished by gangrene, so that the penis has no prepuce. The scrotum is well formed, and the testicles move freely within it. This state of things is seen in plate II. figure 3."

Professor Delpech was under the necessity of digging down eight or ten inches through the immense mass of fat which formed the tumour, before he discovered any vestige either of cord or testicle. This was the occasion of considerable detention in the progress of the operation.

The casts of the tumour and of the operation in wax which the Professor showed me in his private cabinet, are extremely beautiful and accurate.

ART. VII. OBSERVATIONS *on the Medicinal Properties of the* SANGUINARIA CANADENSIS, *in a letter to* MR. FITZGERALD BIRD. By JOHN W. FRANCIS, M. D., Professor of Obstetrics in the University of the State of New-York, &c.

New-York, March 19th 1822.

DEAR SIR,

I am much pleased to find that you purpose to investigate at some length the chemical and medicinal qualities of the *Sanguinaria Canadensis*, and to arrange your observations in the form of an inaugural thesis. I am the more gratified that you have undertaken the task, because there exists great diversity of opinion as to the remedial powers of the sanguinaria. From the chemical investigations you have already instituted, you, no doubt, will be able fully to show that it possesses, as you have conjectured, a peculiar principle like that of the cinchonin.

The experience I have had of the medicinal properties of the sanguinaria, which, however, is limited, convinces me that it possesses potent virtues, and that it may be rendered a valuable article of the materia medica. I am apprehensive that it has been sometimes prescribed where neither the form nor stage of the disease warranted it, and that this circumstance has, in no inconsiderable degree, operated to its disadvantage among practitioners. Besides, its action materially varies with its pharmaceutical form as well as with the proportion of the dose. The only preparations which I have at any time employed have been the recent root pulverized, and the saturated alchoholic tincture of the recent root.

In cases of high general excitement, and in active local inflammations, given in the manner it has been sometimes recommended, it must have proved injurious, and I should prescribe it

with much caution in incipient inflammation of the lungs. In this condition of the system, given in large doses, it will prove too irritating; while in moderate portions it is well known to be a tonic stimulant: in the succeeding stage, after the antiphlogistic means have been employed, the sanguinaria will often be found of service.

I have had recourse to it with essential benefit, in a long protracted and distressing affection of the chest. The patient had laboured under repeated attacks of pneumonia, and notwithstanding very active treatment, had suffered by hæmorrhage from the lungs: the consequences were much constitutional debility and habitual returns of spasmodic dyspnœa, similar to those of pertussis. The tincture of the sanguinaria, to the amount of twenty drops, three times a day, has obviated the most formidable symptoms, and given strength and vigour to the constitution.

In a case of tussis senilis which lately came under my notice, I ordered the tincture, ten drops three and four times a day, with evident relief.

You are fully aware how confidently it has been recommended by Dr. Tully and by Dr. Ives of Connecticut in the early stage of croup. The late Professor Barton, of Philadelphia, believed the sanguinaria would prove a useful medicine, particularly on the foundation of its emetic and expectorant effects, in cases of cynanche maligna, in cynanche trachealis, and other similar affections. "Its properties," adds he, "seem to be considerably allied to those of the Seneca snake root, which has been so beneficially employed in the same cases."* I have no experience of the remedy under these circumstances; and should be fearful of the results of so temporizing a practice. In the management of croup, after the active form of this disease is gone by, and when the membranous effusion exists, the sanguinaria may, perhaps, be of utility, on account of its active emetic powers. I have known ten drops of the tincture induce immediate emesis; yet I should not be disposed to place reliance on

* Collections towards a Materia Medica, part ii. p.40.

it in croup. In so hopeless a condition I am aware of nothing comparable to the free use of the vitriolic emetics.

In a formidable case of acute rheumatism occurring in a gouty habit, I lately administered the tincture of the sanguinaria with good effect, having previously prepared the patient by copious bloodletting, cathartics, and sudorifics. The quantity taken was thirty drops three times a day : it improved the general tone of the system, and gave vigour to the digestive organs.

On the authority of Schoepf and Colden the sanguinaria was long ago noticed as an antidote to the poison of venomous animals, and as a remedy in bilious and other fevers ; and the late Dr. Macbride, in his letter to Dr. Bigelow,* has given it the weight of his recommendation, " in torpor of the liver, attended with colic and yellowness of the skin." In such cases where our pathology is founded on the debilitated state of the system, and tonics are indicated, the sanguinaria has probably been a serviceable article ; for by its tonic powers, it must be available in these cases.

Dr Levi Wheaton, of Providence, Rhode Island, a practitioner of great respectability and experience, states to me that the sanguinaria has became a popular remedy among the inhabitants of that place. As an emetic he himself has often prescribed it with the happiest results; sometimes to the extent of fifteen grains of the pulverized root at a dose : its action is for the most part almost immediate, and is not followed by that prostration which generalty ensues from the operation of this class of medicines.

It has been repeatedly observed, that the pulverized root of the sanguinaria, applied to ill conditioned ulcers with callous edges and an ichorous discharge, has produced an altered action in the part, and induced a healthy state. This I have several times witnessed. In a formidable ulcer of the leg of long standing, the sequela of a badly treated venereal affection, I found the pulverized root, made in the form of ointment, with simple cerate, applied a few days, answer all that could have been wish-

* Medical Botany, vol. i. p. 32.

ed. In several trials, made in cases of obstinate ulcers occurring in the New-York Alms House and Penitentiary, under the practice of Dr. Dyckman, the surgeon of that institution, I have also been fully satisfied of its escharotic powers. Indeed, for the purpose of an escharotic it has been strongly recommended by Professor Smith.

An intelligent friend, Mr. John D. Hunter, now of this city, who has resided for about fifteen years among the western tribes of Indians, informs me that the sanguinaria is held in the highest estimation by them, and that free use is made of it in various disorders. The Chippaways, the Shawanees, the Osages, and many other tribes of Indians, who inhabit the countries watered by the Mississippi, consider it a powerful stimulating tonic, and accordingly prescribe it freely in pulmonic affections, and in acute rheumatism, after active sudorifics have been employed. Wherever there is much febrile excitement, or great local pain, the use of the puccoon is preceded by sweating and purging.

Its reputation as an emetic and as a diuretic is also high among them. As an emetic, however, it is not in their view to be ranked with the Indian physic. Sometimes a strong decoction of the blood root, with the ground ivy, is taken by the females with the intent of bringing on a premature expulsion of the contents of the gravid uterus, when pregnancy would prove an inconvenience to them about to set out on long and fatiguing journeys. Hence we can account for their often having recourse to it, as an emmenagogue, in cases where the catamenial obstruction depends upon an impaired or chlorotic habit of body. In some instances of poisoning from venomous animals it is resorted to for the purpose of promoting suppuration. As an escharotic Mr. Hunter states that the application of it in a pulverized form is very common. In short, the sanguinaria is classed among their most efficient and popular remedies.

Make such use of these facts as you may see proper, and believe me to be,

With great esteem, your friend,

JOHN W. FRANCIS.

ART. VIII. OBSERVATIONS *on the Diseases incident to certain of the North American Indian Tribes ;* in a letter to Professor DAVID HOSACK, from JOHN D. HUNTER.

DEAR SIR,

In compliance with your request I now, after some delay, owing to my other engagements, communicate to you a few facts which have come within my observation, and which, to a person of your acquirements, I flatter myself will at least gratify your curiosity.

On coming from the wilderness to a populous city, where every art flourishes, and every facility abounds for the cultivation and diffusion of knowledge, and particularly where a medical school exists under circumstances so happily adapted to its objects, a superficial observer would very naturally conclude that those portions of mankind who enjoy no such privileges must, in this respect, labour under the greatest disadvantages. But for these privations this uncultivated state of society is compensated by an entire freedom from many diseases to which the civilized man is subjected; and for those diseases to which the children of the forest are liable, nature has amply provided remedies, and experience has taught the skill to apply them.

The diseases of the Indians are, for the most part, simple, and may be relieved by simples. We find diarrhœa as frequently cured by a cold infusion of a bitter root, and as often by chewing astringent barks: the diseases of the stomach by alkalis and gentle laxatives, and the worst sore eyes by washing them in the juice of the yellow root largely diluted. The Indians are in general subject to few febrile diseases: those of the intermitting order are most frequent among them, particularly of the tertian form. Those inhabiting wet marshy lands, especially such as reside on the shores of rivers which inundate their banks to a considerable extent, are somewhat subject, during the vernal and autumnal months, to bilious remitting and intermitting fevers; and those who have been re-

duced by the enervating corruptions of the frontier settlers have, of late years, been afflicted with typhus fever.

In the treatment of fevers the Indians almost uniformly commence by giving an emetic or cathartic, followed by sweating, which with them forms one of the principal remedies in most of their complaints. During the interval between the sweating periods, when there are symptoms of considerable debility, they make free use of tonics, which consist of bitter roots, the colombo, (the Frasera Caroliniensis.) and boneset; of the names and medical properties of which I shall more fully treat in my anticipated publication.

Where violent pains accompany fevers, and are fixed in particular parts of the body, they foment with stimulating decoctions of herbs, and apply blisters on the pained parts, with hot poultices of the bark of moosewood pounded, united with several other vegetables possessing similar properties. Their fevers sometimes terminate critically by forming abscesses in various parts of the body. These terminations mostly occur in the glands of the throat or on the large joints of the extremities. These discharges are always encouraged by the application of warm emollients to the parts, it being the place, as they term it, where the disorder goes out: these local affections sometimes injure the limbs, or deform the body.

Rheumatism, which constitutes one of their most troublesome complaints, is treated by bleeding, sweating, purging, unctions, frictions, bathing, fomenting, &c. If there be local swelling in particular parts they often scarify with a knife, or sharp stone, or fracture of flint rock, but the lancet is also now used among them, and venesection at the arm. They sometimes dig a hole in the ground of a depth and capacity to contain the patient, and build a large fire of dry sticks and brush over it; upon this they pour water and get in as warm as they can endure it. Bushes and leaves are placed over it in order to retain he vapour; in this situation, almost suffocated, they often remain an hour or more. When in, they drink warm teas of sweating herbs, and on coming out wrap themselves in a blanket or robe to prevent taking cold. This is a much more disa-

greeable mode of sweating than the sweat oven, a description of which will be given in another place. They submit to the above mode in obedience to an opinion among them that violent diseases require violent remedies to drive them out. It is much practised among the Kickapoos and Shawanees. Their practice is tolerably successful in this disease ; though from almost continued exposure to the causes which originally produced it, they are very liable to relapses ; their mode of life in hunting and war, subjecting them much to the influence of wet and cold, and the uncertainty of supply rendering them more frequently victims of alternate abstinence and excess. Few of the men arrived at common age, escape this tormenting disease, and so sensible are the rheumatic to the varying temperature of the weather, that they always tell, or profess to tell, an approaching change in the state of the atmosphere ; and I am disposed to think the opinion entitled to some credit, as they generally make much complaint about such times. It is well known they seldom or ever complain without great cause, and frequently endure, without betraying the smallest degree of visible displeasure, the most excruciating pains.

Pulmonary consumption is a disease, it has been said, that does not at all exist among the Indians ; and some who admit it to be one of their maladies, confine it to those alone who have been unhappily debauched by the evil spirit of in toxicating liquors. The remark, however applicable to those tribes concerning whom it was stated, is far from being universally true ; many facts, too well established to admit of controversy, testify the reverse ; facts familiar to men, who could not be deceived in the character of a disease, the symptoms of which are so clearly marked. Nor is the disease confined to those alone who have been the dupes of that demoralizing beverage, whiskey, the article of traffick most generally taken among them by some of the traders, though it must be admitted to be much more frequent among such than among those who have never suffered by its abuse.

Those cases of consumption which I have witnessed among the Indians, and which may be ascribed to the intemperate use of

ardent spirits, do not appear to me to be the direct effect of the spirit, but by rendering them incapable of taking care of themselves and exposing them to all the attendant train of evils necessarily flowing from a loss of that sense of propriety, so necessary to our comfort and safety. The Indians have in many instances contracted the views and habits of civilized society, without adopting any of its improvements. They have lost much of their native vigour and activity by this unhappy intercourse, without improving their habitations and dress: added to this they are less qualified for those more temperate and salutary pursuits, on which their health and subsistence depend. When an Indian goes into the white settlements and becomes drunken, he commonly lies out, be the weather as it may; when he rises from his stupor, he frequently takes another potation, and again places himself in the same situation. I have seen cases of this kind occur, and the practice kept up for days in succession, during which time very little food or exercise is taken. The effects on them are the same as on the whites: inflamed red eyes, with habitual weeping from them; a sallow bloated complexion, and trembling of the joints; indigestion, loss of appetite, and general debility, are the usual consequences of drunkenness among the Indians. These symptoms certainly predispose to diseases which the system otherwise might resist. And when this habit is for a considerable time continued it generally terminates the life of the subject, either by diarrhœa, dropsy, or pulmonary consumption. Independent of this cause, however, as before observed, consumptions exist among the Indians. Its approach is commonly gradual and almost imperceptible, and the symptoms are nearly as follows: a general dryness of the skin, alternate accessions and intermissions of fever, and shooting pains through the breast characterize the first state of the disease: cough and a dry state of the tongue and mouth, hurried respiration, a fixed pain in the breast, the second state, and fetid, purulent expectorations, more constant coughing, especially in the morning, or on any excessive exercise, night sweats, and diarrhœa, are common precursors

of the closing scene. Some persons whom I have seen die with this disease have swelled feet and legs just before death. The females among them are less subject to consumption than the males I believe from what I have been able to learn that among the civilized this is otherwise. I have however witnessed death by consumption in a young Indian woman not more than two years since. She was of the Shawanee tribe on the Meramac river. Her case as nearly as I can recollect was as follows: she was about eighteen years of age ; she went in company with a number of her tribe to Jackson, a small town in Cape Girardeau county, and state of Missouri, where from her attention to a drunken parent, she exposed herself so much as to cause an interruption in that periodical discharge so essential to the health of females. This was followed by a cough, for which marriage was recommended, to which prescription she submitted : the effect was palliative, she had a child in about a year after, and then became consumptive, and died within a few months after that event.

It would be useless to enumerate all the superstitious charms and incantations practised in the cure of this as well as other diseases among these people ; some of which their white neighbours have learned them, and they owe the ignorant whites nothing in this respect ; for some of them have as studiously copied their tawny brethren.

Their most efficacious remedies are emetics, sudorifics, stimulants, and tonics. When there appears to be an oppression in the breast and difficult breathing, they give an emetic. This is followed by sweating, and I believe to an injurious extent. They indulge in it till they become debilitated and feeble almost to fainting. They use internal sudorifics, also, which consists of nauseating warm teas, of roots, and herbs ; and their stimulants and tonics are generally aromatic bitter roots and barks, plants, &c. They inhale the smoke of burning pitch also. The steam arising from bitter herbs placed on hot rocks, with water poured on them, is also part of the curative process. Local applications, when there are fixed pains, are also resorted to. These consist of little skins filled with hot

wet ashes, and bitter herbs applied immediately to the pained parts as warm as the patient can endure them. The warm alkalized bath is sometimes resorted to.

I have thus, sir, in a very imperfect manner, briefly stated to you a few facts which have fallen within my observation at a period of my life which necessarily precluded all the advantages of education: should they afford you any gratification it will be a pleasure to me. The subject is far from being exhausted, and only requires an abler hand than mine to render it interesting, which I hope, at some future day, to see prosecuted with success.

With sentiments of the highest respect, I am your greatly obliged friend,

JOHN D. HUNTER.

ART. IX. *Observations on the* LYCOPUS VIRGINICUS, *or Bugleweed. By* J. SMYTH ROGERS, M. D. and JAMES M. PENDLETON, M. D.

To the Editors of the New-York Medical and Physical Journal.

GENTLEMEN,

The Lycopus Virginicus (bugleweed, or water hoarhound,) having attracted considerable attention as a remedy for different forms of pulmonary complaints; and its use being sanctioned by several respectable practitioners in this city and its vicinity, the subjoined extracts from notes of some cases in which it was administered, may prove not uninteresting. They are reported, not so much on account of their intrinsic importance, as from a hope, that they may afford sufficient inducements to a full investigation of the properties of a plant, which, if it deserve *one half* the credit given to it, will rank among the most valuable of our remedies in the treatment of a common, and most fatal class of diseases.

With respect, we are, Gentlemen,

Your obedient servants,

J. SMYTH ROGERS,
JAMES M. PENDLETON.

New-York, June 1st, 1822.

Case 1st, is that of a lady, of a delicate frame, phthisical predisposition, and subject to frequent hæmoptysis. At the time we saw her, she was not under the care of any physician, but having been accustomed, for several years, to watch the approach of her attacks, she became well acquainted with their premonitory symptoms: on their accession, she had for some months employed the bugle-weed, with material benefit: it was taken in the form of infusion, to the extent of a pint in 24 hours, and its effects were, to lessen excitement, to allay irritation of the chest, and thus to ward off the threatning hæmorrhage. From the result of frequent trials, she was so thoroughly convinced of its efficacy that she never left home, even for a few days, without a portion of the herb.

Case 2d. P. B. a labourer, aged 28, naturally of a strong constitution, received a violent blow on his breast, the consequence of which was a severe illness, which confined him for several weeks to his house. By the aid of a sea voyage, he was partially restored to health, but on his arrival in port, having indulged freely in the use of spiritous liquors, he was suddenly seized with hæmorrhage from the lungs, a complaint from which he had before been free: it was attended by violent pain in the injured part, distressing cough, and general excitement. By the use of the ordinary remedies, the febrile symptoms were alleviated, and the pain relieved, but the bloody expectoration continued, and the cough harrassed him incessantly, obstinately resisting every means employed for its removal. Under these circumstances, the patient was directed to take an infusion of the lycopus, (one ounce of the dried plant to one and a half pint of boiling water,) in doses of a tea cup full, six or eight times a day. Shortly after he commenced its use, an evident amendment took place in his symptoms: the cough gradually subsided, the hæmorrhage was checked, and he regained his health.

The 3*d* patient to whom this remedy was prescribed, was a coloured man, aged about 30, of an uncommonly large frame, but from laborious employments, and intemperate habits, subject to frequent alarming hæmorrhage from the lungs: within the preceding year, we had attended him in two attacks, in

which he was relieved by active venesection, blisters, neutral salts, and other remedies indicated in such affections. In the present case, the symptoms were more urgent, and the hæmorrhage more profuse, than in either of those which preceded it: having acquired confidence in our medicine, from the result of previous trials, we directed him to commence with it, immediately after lessening the force of circulation by blood letting. In 48 hours the hæmorrhage ceased, and on the fourth day, our patient considered himself nearly as well as before the attack.

Case 4th. The situation of this patient was such as to preclude all hope of permanent benefit from any course of remedies: she was a woman far advanced in life, and when visited, was lying in the last stage of pulmonary consumption: all that remained for us to do, was, to render as comfortable as possible, the last moments of her existence. She was extremely debilitated; but the only symptom producing much uneasiness was a cough, which both by day and night disturbed her rest, and exhausted her little remaining strength. A combination of tonic and anodyne medicines was at first found of partial utility; in a few days, however, they excited so much disgust, that she could not be prevailed upon to continue their use. We then directed the infusion, in small and respeated doses: this proved a grateful drink, and she took it freely. Within three days the cough entirely left her, and expectoration was effected without the slightest efforts: she remained exempt from the cause of suffering during the remainder of her illness, which, however, terminated fatally in a few weeks.

Our *5th case*, was that of a middle aged woman, of a feeble constitution; from the form of chest predisposed to consumption; and liable to hæmoptysis with almost every cold. She was likewise subject to hysteria, and her general health was bad. In the last return of hæmorrhage, in which we prescribed for her, as the symptoms of excitement were very slight, we commenced the administration of the infusion, in the usual doses, without any preceding remedies: she considers herself much benefited by it, and was, very shortly, convalescent

The 6th and last case of which we have any minutes, was that of a scrofulous boy, whose situation from our first visit, as regarded prospect of cure, was desperate. He was, at times, much tormented by a cough ; a variey of medicines had been given to palliate his complaints without much benefit ; recourse was at last had to the lycopus ; it was found of more service in relieving the cough than any thing he had previously taken, though that symptom continued more or less troublesome until his death, which took place more than nine months after confinement to his chamber.

In reviewing the preceding reports, we would remark, that the only case in which any circumstance rendered the effect of the bugleweed at all equivocal, was the second : in this an anodyne was given at night, and on one or two occasions in the day, while employing the infusion : this diffiulty is in a great measure obviated by the fact, that anodynes had been previously prescribed with the other remedies, with but little advantage ; and that the improvement of our patient, after he had resorted to the new medicine, was more marked and rapid than before its use. This patient noticed a peculiarity, attending the operation of the infusion, which appears in some way connected with its curative properties : the draught uniformly caused a sense of coldness, which he compared to the sensation produced by "cold water running down into the stomach :" that this was independent of its actual temperature is evident from the fact that other drinks, having no greater degree of warmth, did not cause a similar feeling. The same remark was made by the lady whose case is first detailed : in her, the coldness amounted to a temporary, but universal chilliness, followed by a diminution of the febrile heat, which accompanied her complaints.

Before concluding our paper, it will be proper to mention a fact, which should be known to those who are disposed to employ the remedy in the cases to which it is adapted. There are two species of the lycopus, found in this part of the country, which closely approach each other in their botanical characters, but differ materially in their sensible qualities, and in their medicinal properties : it is unnecessary here to give a mi-

nute description of the two plants; they may readily be distinguished by attention to the following particulars:—The flowers, which are very small, grow close by the stem in both species. In the L. Europæus (the *spurious* plant) the calyx is sharp and thorny; in the *genuine*, the L. Virginicus, it is soft. The taste of the *spurious* is purely and intensely bitter: that of the *genuine* much less so; and with its bitterness there is a peculiar flavour, which is wanting in the other. When a quantity of the *genuine* plant has been kept in a close drawer for a few hours, it exhales an odour somewhat like that of lamp oil; the smell of the other is merely herbaceous. These *popular* marks of distinction are the more important, as the dried plant only is offered for sale, in which state its botanical characters are not so easily discovered. By far the larger proportion of the herb, which is found in our shops, is of the *spurious* kind; or *a mixture of the genuine with a large proportion of the spurious:* to this may probably be ascribed the disappointment many have experienced in the use of the lycopus, as the medicinal properties of the two plants differ widely; and many cases to which the L. Virginicus might be suited, would be materially injured by the L. Europæus: the latter plant was formerly in extensive use in France, as a substitute for cinchona, and considered capable of fulfilling every indication for which the Peruvian bark is usually prescribed. We were informed by the person who supplied most of our shops with the bugleweed, that he was not aware of any difference in the effects of the two plants, although he could readily point out their distinctive marks; but that he had been in the habit of gathering indiscriminately the L. Europæus and the L. Virginicus, the former of which is much more abundant than the latter.

We regret that the impossibility of procuring a sufficient supply of the genuine plant obliged us to discontinue our investigations: we hope, however, to resume them, so soon as we are in possession of the means of doing so with advantage. We trust the preceding details may induce others to engage in a similar examination, and that the virtues of the plant may be fairly and fully tested.

Art. X.—A Case of Phlegmasia Dolens, *occurring in an aged female.* By John B. Beck, M. D.

The following case, although not a solitary one of the kind, is nevertheless of very rare occurrence; and as it bears upon some popular theories concerning an interesting disease, I have judged it of sufficient importance to place it on record.

In the month of May last, I was called to visit from the Dispensary a female patient, whom I found with her left leg uniformly enlarged from the toes to the groin, about one third beyond the natural size of the limb. Most of the symptoms characteristic of phlegmasia dolens were present. The limb was tense, shining, elastic, and exceedingly painful. No œdema was discoverable in any part of it. The glands in the groin were not found to be enlarged in any stage of the disease, after I was called in, nor could I learn that they had been so previously. Generally the leg was extremely hot, although occasionally the patient complained of a sense of coldness in it. The left labium had remained unaffected by the swelling in the neighbourhood. I saw the patient first on the fourth day after the disease had made its appearance, and she informed me that it commenced with a feeling of deadness in the toes, heel, and upper part of the foot, which was shortly succeeded by severe pains in the part, after which the foot began to swell. By the succeeding day the swelling had ascended to the knee, from which it gradually proceeded to the groin.

On the fifth day from the commencement of the disease, the swelling began to decrease, and on the seventh the limb was reduced to its natural dimensions, with the exception of the upper part of the thigh, the enlargement of which did not completely subside until the tenth day.

The subject of the preceding case is a native of Ireland, aged fifty-two years, and of a spare habit of body. Her menses, which had previously been regular, ceased about six years ago. She is the mother of six children, the youngest of whom is seventeen years of age. Her labours have in gene-

ral been natural and easy, and none of them have been succeeded by any unpleasant consequences. She has never been troubled with fluor albus, and has enjoyed an uninterrupted series of good health, until within the last two years, during which she has been occasionally afflicted with rheumatic pains in her arms and legs.

In the treatment of this case the symptoms yielded rapidly under the use of active cathartics, with tepid applications to the part, succeeded by stimulating liniments, frictions, &c.

I cannot dismiss this case without adding a few reflections.

1. It has been common with almost all the popular writers on Phlegmasia Dolens, to consider it as inseparably connected with the puerperal state, and all their theoretical doctrines concerning its proximate cause are, accordingly, built upon this assumption. This error, for such it must be admitted to be, I am surprised to find countenanced by late writers on this subject, and especially by a very recent British author, in a work* eminently characterized by sound sense and practical wisdom.

Dr. Ferriar, I believe, was the first person who advanced the opinion, that so far from its being dependent upon the puerperal condition, it might actually occur in males, and he relates a case to this effect which fell under his own care.† Subsequent observation has confirmed this fact beyond the possibility of dispute. The recorded instances in which this affection has occurred in males, though rare, are clear and decisive, and the case which I have detailed is no less conclusive on this point. I conceive it then to be established, that this disease may, and not unfrequently does arise from causes unconnected with parturition.

2. This disease is usually described as invading only the lower extremities. In one of the latest and best works on Nosolo-

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* Observations on the use and abuse of Mercurial Medicines in various diseases. By James Hamilton, Jun., M. D.

† Medical Histories and Reflections. p, 341. Am. Ed.

gy, it has hence been denominated *Cruritis.** There are some facts, however, which seem to favour the belief that it may occasionally appear in the upper extremities. Dr. Ferriar first remarked, that this might be the case, and he even goes so far as to assert, that it may invade any part of the body. He says, "I see no reason for supposing, that this affection is necessarily confined to the extremities, particularly to the lower limbs. The causes which produce inflammation of the lymphatics in one part of the body, may occasion it in the same order of vessels, when applied to them in any part of the body."† In addition to this he describes the case of a gentleman attacked with this disease in his left leg and thigh, who previously had a painful enlargement of the left arm, "but not" he adds, "to a degree equal to the disorder which I have described."‡ The account is certainly not very precise, but it is fairly to be inferred, that the affection of the arm was similar to that of the leg. Without resting, however, at all upon this doubtful evidence, the testimony of Dr. Lowder is explicit on this subject. He says, "I have seen this disease affecting the upper extremities." ‖

The following case, communicated to me by Dr. Heermans, goes so directly to confirm the foregoing facts and opinions, and is of so interesting a nature, as to render unnecessary any apology for introducing it in this place.

"The subject of the following disease was a young man of nineteen years of age, of a nervous temperament, and had been afflicted, from a boy, with a painful affection of the muscles of the leg, unaccompanied, however, with any swelling or tumefaction of the part. This was found to be particularly troublesome after violent exercise or exposure to damp and cold weather. In November, 1814, he took a long journey on

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* A System of Practical Nosology. By David Hosack, M. D. F. R. S.

† Histories and Reflections, p. 345.

‡ Ibid. p. 342.

‖ Ibid, p. 362.

horseback, during the two last days of which he was exposed to constant rains. Three or four days after his return home, he complained of a pain in the ham of the leg, with some inability to move it. The pain soon increased, and swelling commenced and extended rapidly upwards to the groin. The sensation was so acute, that he could not bear the least thing to come in contact with it. In about thirty hours, the limb was enormously swelled, had much the appearance of an anasarcous leg, though differing from it, in not being so uniformly smooth and evenly distended, nor did it pit upon pressure from the fingers.

The swelling soon commenced in the other groin, descending as rapidly as the other had ascended, with the same sensation and appearances. The swelling now continued in both legs down to the extremities of the toes. On the fourth or fifth day he complained of the shoulder, and some swelling was perceived about the joint. This soon increased, but not with the rapidity and violence, that it manifested in the lower extremities. It gradually extended down the arm of one side, and was soon followed by the other. On the ninth or tenth day from the first attack, the swelling and pain had generally subsided, except the left arm, which remained enlarged for six or eight weeks before it subsided. The pulse at the commencement of the disease was frequent and chorded; the stomach was affected with slight nausea; the bowels costive, but easily moved by cachartics.

Viewing the disease as of an inflammatory character, I had recourse to bleeding, cathartics, and diaphoretics. Fomentations were freely used, together with friction frequent and active, after the general inflammatory symptoms had subsided. Bark and wine with elixir vitriol were given during his convalescence."

There can be no question, I think, concerning the nature of the disease described by Dr. Heermans, and if so, it serves to expose, in a still more striking manner, the inadequacy of almost all the theories which at various periods have been advanced on this subject.

ART. XI. *Account of the* SALMO OTSEGO, *or the* OTSEGO BASSE, *in a letter to* DR. JOHN W. FRANCIS, *from* DE WITT CLINTON, L L. D., Governor of the State of New-York.

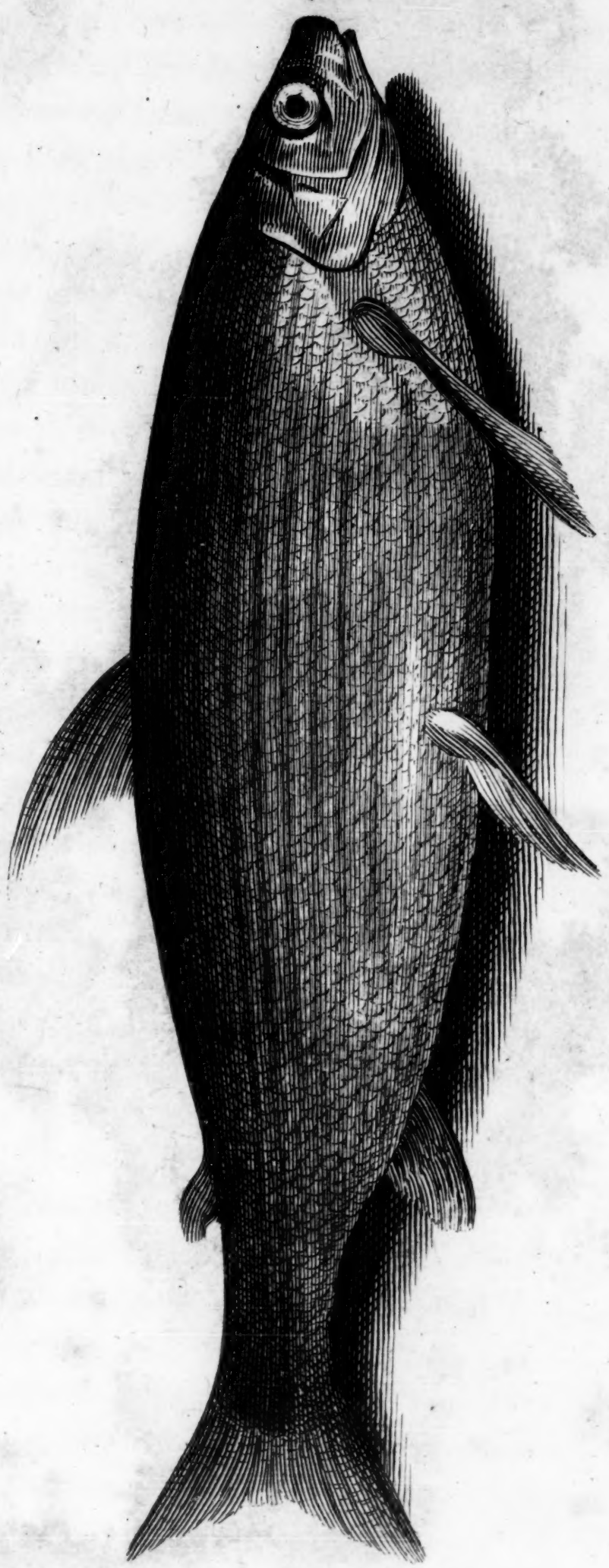
Albany, May 16, 1822.

SIR,

I send you, for your excellent work, an accurate and beautiful delineation of a fish, caught in the Otsego lake, the principal source of the Great Eastern Branch of the Susquehannah river. This painting was executed by Ezra Ames, Esq. an eminent artist of this city; and the representation of this fish, which is called Otsego Basse, is as large as life. It was seventeen inches in length, five in depth, and one in thickness; and it weighed two pounds six ounces.

The pupil of the eye is black; the iris silvery; the opercula spotted with yellow on a silver ground; the mouth small, and exactly like that of a shad, except a little protuberance of the upper lip, which is also bifid. No teeth in the jaws, palate, roof of the mouth, tongue, or throat. The lateral line straight, and hardly discernible: appearance of lateral stripes, like the Perca Mitchilli, or Roch fish—colour silvery white below the linea lateralis—somewhat darkish above it; scales small; back highly curved. The first dorsal fin has nine softish rays, three of which are imperfect: it is about mid-way in the back, and over the ventral fin. The second dorsal fin is small and filamentous, and directly over the anal fin. The caudal fin is forked—the belly not serrated.

This fish is of the abdominal order, and cannot be satisfactorily arranged under any genus of the Linnæan system. As it is, however, included in Bloch's description of the salmon, which he represents as an abdominal fish, with an adipose fin on the back, and a body covered with scales, I shall, in order to avoid the multiplication of genera, consider it as a Salmo; and, as it is probably a non-descript, and peculiar to the Otsego lake, its specific name may, with propriety, be derived from the water which it inhabits: I shall, therefore, call it *Salmo Otsego*.



This fish is nearly equal to any fish that swims for exquisite and delicious food. It is among fishes what the grouse, or canvass-back duck, is among birds. The flesh is fine, white, and delicate.

It sometimes weighs six pounds: It is never found in the neighbouring lakes or streams, or in the Susquehannah river. It is not anadromus, and appears to be always stationary in the lake. It appears in shoals every spring and fall, and at other times retires to the deeps of the lake, like the black basse and perch of lake George, which are only seen periodically. The latter lake has no outlet which can be ascended by fish: This proves, conclusively, that their retreat is only into its deep waters; and as these lakes are very deep, they afford ample space for seclusion. Perhaps the notion of Pennant that the herring proceed from the polar seas is incorrect. I cannot believe that they extend their migrations beyond the seas in which they periodically appear.

The Otsego basse is very rarely taken by the hook. It was formerly caught in great numbers by the seine—sometimes five thousand at a draught. There is now a comparative scarcity. The diminution of fish, greatly in demand, may be attributed, generally, to the havoc created by the increasing population of the country, and to the destruction of the food of fishes produced by cultivation; but in this case it is ascribed to peculiar causes.

The spring herring, or clupea vernalis, formerly visited this lake in immense multitudes for the purpose of spawning; now their ascent is arrested by the erection of dams. The salmon trout, and other predaceous fishes of the lake, which formerly derived their subsistence from the spawn and young of the herring, being shut out from this source of supply, have turned their attention to the Otsego basse, and have thinned its numbers. The herring formerly reached this lake in the spring, and their young did not leave it until the ensuing autumn. The pickerel, which is the tyrant of the lake, and which drives away and conquers its neighbour and congener, the white pike, of the Susquehannah river, is considered the principal

cause of the diminished numbers of the Otsego basse. But captivity appears to have the same effect on them as on the wolf. Near the place where the fishermen draw the seines there is a capacious fountain, in which they deposit their fishes and keep them alive. In one of their draughts they took a large pickerel, and put him in the depot. The basse held no communion with him ; and they kept apart as far as possible, without experiencing any annoyance from their formidable enemy.

The Otsego basse feeds upon worms, which appear to be abundant, attaching themselves to a concreted ropy substance found mostly in and on the grass at the bottom. It also eats those insects which appear on most waters in the spring of the year ; and it probably derives its nutriment in part from aquatic vegetables, fat earth, animal and vegetable mucus, and the power which all fishes possess, of decomposing water and converting it into nourishment.

It spawns in water not under twenty-five feet deep, and the season for this purpose is supposed to be exclusively the autumn ; but one having been found this spring in roe, and the periodical appearance of this fish being vernal, as well as autumnal, I should suppose that it spawned in both seasons ; for whenever gregarious fishes change their places of habitation at prescribed times, from the depths of the lakes or the ocean, into the shallow waters of the former, or the rivers which run into the latter, it may be considered as the season of production, marked out by nature.

I am, dear sir,
with great respect,
Your most obedient servant,
D. W. C.

JOHN W. FRANCIS, M. D.

Art. XII. *Description and Analysis of a new* Ore of Zinc, by John Torrey, M. D. of New-York.

[Read before the N. Y. Lyceum of Natural History, April, 1822.]

This mineral was discovered about two years ago, in the town of Ancram, in the state of New-York; a place remarkable for its iron works and lead mine. It was found on taking down one of the old walls of the furnace, erected in the year 1744. It attracted notice from its great weight; and although it resembled some common stone, it was supposed to be an ore, though of what metal was not conjectured. Several specimens having been sent to me for examination, I submitted them to analysis; and the result was altogether different from what the appearance of the mineral indicated. It proved to be a nearly pure oxyd of zinc, and an ore of that metal distinct from any hitherto described. This induced me to make further inquiries respecting the mineral, as it would be exceedingly valuable if found in sufficient quantity; but I have, as yet, been able to procure very little satisfactory information respecting it. Mr. Seth Hunt, who visited Ancram in October last, was informed by Mr. Thomas Ackers, manager of the lead mine, and Robert Patterson, Esq. of the iron works, that the ore was found *built into* the wall of the furnace, and that notwithstanding the repeated personal search of the latter gentleman, through the surrounding country, for the distance of several miles from the furnace, and making diligent inquiries of the ancient inhabitants, he had not been able to obtain any information that would direct him to the spot from whence it was taken. He has, however, every reason to believe that the ore was obtained within a few miles of the furnace, and, most probably, within a very short distance; but time, through whose lapse it was lost, may again bring it to light, and furnish to the fortunate discoverer, or proprietor, or to both, the means of wealth and independence. Since I received this information from Mr. Hunt, I have heard of the discovery of a considera-

ble quantity of the mineral in the foundation of an old house near Ancram.

Description of the Mineral.

External Characters. All the specimens I have seen were tabular masses, possessing sometimes a distinct slaty structure; though they generally were composed of layers without a tendency to separate, giving the mineral a striped aspect, when viewed in a direction perpendicular to the direction of the strata.

It is granular and compact.

Its colour is grayish green, or olive green.

It is perfectly opake and the surface dull.

It is harder than calcareous spar, and is easily reduced to a powder, which is of a lighter green than the mass.

Specific gravity, 4.924.

Chemical characters. Before the blowpipe it is infusible, but when the heat is intensely urged, the oxyd of zinc is volatalized, communicating a white colour to the flame. The powdered mineral dissolves instantaneously, and almost entirely without effervescence, in the stronger acids.

Analysis.

The following preliminary experiments were made to ascertain the nature of the mineral.

A. Some of it in fine powder was treated with nitric acid. It readily dissolved, leaving only a small quantity of a light black residue. The solution, on being filtered, was transparent and colourless, and yielded quadrangular prisms on evaporation. These had a caustic metallic taste, and were very soluble in water and alcohol. When the nitric solution was repeatedly boiled to dryness, and a small quantity of acid added at each operation, some pure oxyd of iron was separated. To the filtered liquor the following tests were applied:

(*a.*) The caustic alkalies produced a white precipitate, which was entirely re-dissolved by an excess of aklali.

(*b.*) Prussiate of potash occasioned a white precipitate.

(*c.*) Hydro-sulphuret of potash produced the same effect.

(*d.*) Copper, iron, and other metallic rods immersed in the

solution did not occasion any precipitation of metal.

(*e.*) Muriatic acid did not disturb its transparency.

(*f.*) Oxalic acid threw down a white precipitate.

B. There remaining no doubt that the principal metal of the ore was zinc, the black insoluble residue was next examined. It was not acted upon by acids, except strong nitric and sulphuric acids, which it appeared to decompose. When made into a ball with a little mucilage, and ignited, it burned almost entirely away without flame or vapour. Projected into melted nitre, it caused a violent deflagration. It was nearly pure *carbon.*

C. One hundred grains of the ore, in fine powder, dissolved immediately in diluted sulphuric acid; leaving one grain of the black powder, which was ascertained in the preceding experiment to be carbon.

(*a.*) The solution was clear and colourless. It afforded flat four-sided prisms on evaporation, having all the properties of sulphate of zinc. These were re-dissolved in water, and carbonate of potash added until precipitation ceased, and the liquor was boiled to ensure the complete decomposition of the metallic salt. The carbonates of zinc and iron were thus obtained.

(*b.*) To separate the latter, the whole was re-dissolved in acetic acid, and afterwards boiled to dryness. The acetate of iron was decomposed, leaving the base in a state of per oxyd. weighing 3.50 grains.

(*c.*) It now remained to determine the quantity of oxyd of zinc, which was done as follows: The solution obtained in the preceding experiment, after separating the iron, was precipitated by carbonate of potash. The carbonate of zinc thrown down was tested with ammonia, to be certain of the absence of manganese; but this alkali dissolved the whole of the precipitate, and proved it to consist of zinc alone. On evaporating the ammonia, and calcining the carbonate, 93.50 grains of oxyd of zinc were obtained.

The result of the analysis is :

Oxyd of zinc,	-	93.50
Oxyd of iron,	-	3.50
Carbon, -	-	1.00
		98.00
Loss, -	-	2.00
		100.00

The red oxyd of zinc of New-Jersey, discovered by Bruce, resembles our mineral in composition more than any other ore yet described. It however differs essentially in containing 12 per cent. of manganese, and in the absence of iron. Its external characters are altogether dissimilar. To distinguish it from Bruce's mineral, this may be called *green oxyd of zinc*; though I am aware that the name is objectionable, as there is ut *one* oxyd of zinc, which is *white.*

It is much to be regretted that a mineral so interesting and valuable should not be better known. We hope the active search which is making for it will not be without success. It is by far the richest ore of zinc known ; containing, according to Thompson, 75.31 per cent. of metal. The red zinc ore of New-Jersey, beside the manganese which it contains, is always intimately mixed with more than half its weight of Franklinite, from which it is impossible to separate it by mechanical means ; while the ore of Ancram is so pure that it can be used without any preparation, either for extracting the metal, or for the manufacture of brass.

Art. XIII. Observations *and* Geological Remarks *on the* Minerals *of Paterson and the valley of Sparta, in New-Jersey.* By Thomas Nuttall, F. L. S. London.

A cursory geological sketch, sufficient to excite a closer attention to the subject in those who follow the same route, may not perhaps be a superfluous introduction to the more immediate subject of the present communication. In my way, by the

usual road, to Paterson, along the banks of the Passaic, little presented itself to the observation of the geologist, except the development of the Red sand-stone formation, commencing at Bergen heights, four miles west of the city of New-York. In this ridge, which so immediately succeeds that of Hoboken and its *transition* serpentine, (for so I now consider it,) existed the famous copper mine of Mr. Schuyler, now abandoned, and which only forms, in fact, a small portion of a metalliferous bed, extending, at least, as far as the banks of the Rariton.

On approaching the town of Paterson, a scenery more diversified and romantic presents itself, and the surrounding cliffs and precipices, as well as that which produces the picturesque cataract of this place, consist of beds of trap, well characterized, and reposing on the Red sand-stone. This formation, which has been so carefully examined by my friend Judge Kinsey, of this place, is peculiarly interesting to the naturalist. The trap contains, as usual, in its dispersed cavities, nodules of prehnite, of mezotype, stilbite, agates, and, in one locality, fine crystals of datholite or siliceous borate of lime. Sometimes it passes into an amygdaloid, as in the Derbyshire toad-stone, from which it can scarcely be distinguished, except by the rarer substances contained. In some of the amygdaloidal cavities lined with crystallized carbonate of lime, occasionally also occur small greenish crystals of the datholite; others are exclusively lined with druses of crystallized or lamellar chlorite, which indeed enters largely into the composition of the wacke or softer trap of this region. In Derbyshire this formation is overlaid by what is called the mountain limestone, one of the more ancient beds of the secondary formation; here the trap and amygdaloid form the utmost summits of the hills, which in height approach to mountains. Its junction with the *red* sand-stone is marked with some peculiar characters, highly imposing to those who feel inclined to favour the Plutonic theory. I must confess that at the point of junction of these formations the trap is peculiarly ambiguous: it presents a regular porous structure; not, however, any thing like *pummice;* and many of the pores, if not *all*, seem dependent on the decomposable nature

of the carbonate of lime, which still in the interior occupies those supposed pores. There are, moreover, in some few places, larger cavities, appearing somewhat glazed; and rugose masses, exceedingly like slags; these are, however, appearances which ought to be weighed with caution, and are insufficient for demonstration. The porous quartz of Providence township, in Pennsylvania, and of West-Chester, in Delaware, connected with the greenstone formation, is far more imposing as a volcanic production; yet distinctly traceable into a reticularly veined and compact jasper abundantly in place near to the Black Horse Tavern. This porous texture, perfectly original, is such as to render considerable masses of the mineral buoyant on water. But what are we to think of the serpentine, equally porous, in the same locality, and several others, (as near Dixon's farm, Wilmington,) which might be adduced, also gradually and distinctly passing into perfect compactness? If density alone be considered conclusive of aqueous origin, we must introduce a double system of formation into every class of rocks the globe exhibits.

In the ridge, about two miles west of Paterson, occur very perfect basaltic columns of small magnitude, (about a foot or eighteen inches in length, and from one to four inches in diameter,) presenting from four to six sides; blackish green and crystalline in the interior. This ridge throughout presents beds of columnar concretions as far as the banks of the Little Falls of the Passaic.

This basaltic formation forms the summit of every ridge, for about 15 miles northwest, to Pompton, where it ceases, and is succeeded by grauwacke, gray, white and liver brown, containing occasionally pebbles of red and brownish jasper. The affinity of this grauwacke with the red sand-stone of Paterson is sufficiently obvious, not only from hand specimens, but from identity of relative situation, for they both underlay the trap. And what, indeed, shall we think of the antiquity of organized bodies, when it is known, which is a fact, that casts of ammonites* have been found in the larger pebbles, contiguous with the

* Collected by Jud[illegible] Kinsey.

surface of the red sand-stone formation, or near to the point where it *enters into* junction with the porous trap. In the lower portions of this formation, I believe, as yet, no organic remains have been discovered; and it is not unfrequently, when approaching to a slaty structure and argillaceous consistence, eminently metalliferous, as at Schuyler's copper mine, and that now working at Somerville, which presents masses of the ruby oxyd, native copper, and minute portions of native silver.

Contiguous to the western declivity of the Pompton mountains, Judge Kinsey and Doctor Mead found pale green sahlite in abundant masses, connected with a beautiful smallish grained dazzling white carbonite of lime or marble, again likewise contiguous to a formation of diaphanous greenish yellow perfect serpentine, traversed, like that of Newburyport, with silky seams of amianthus.* Connected apparently with the greenstone formation, is a large rolled or rounded mass of Labrador felspar, found by Judge Kinsey in the vicinity of the hills of Pompton.

After passing the Pompton mountains, a succession of the ridges of the Highlands present themselves, thickly strewed with rounded *debris*, so as to render even the valley lands difficult to cultivate. Passing the Warwick ridge, or Hamburgh mountains, we enter upon the valley of Sparta, where a beautiful white crystalline limestone and marble appear, occupying the valley, and rising westwardly into a low subsidiary ridge, about eight or nine miles in length, proceeding almost due north and south.

As the metalliferous deposites form here the most remarkable feature of the formation, we shall preface our examination of the minerals of Sparta, by a few remarks upon them. The first, or eastern bed, which at Franklin appears like a black mountain mass, at least 30 or 40 feet wide, consists of an ore of iron in common, scarcely at all magnetic, and with great propriety considered by Berthier as a new metalliferous com-

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* The same mineral, with its usual associate, has been received from Philipstown, on the Hudson, by Professor Renwick, of Columbia College.

bination entitled Franklinite, contains 66 per cent. of iron, 16 of zinc, and 17 of the red oxyd of manganese. On the supposed riches of this immense bed, the great furnace of Franklin was built; it was soon, however, discovered not only to be irreducible to metallic iron, but to obstruct the fusion of other better characterized ores in a notable degree. If employed in a quantity exceeding one tenth of the magnetic oxyd of iron with which it was economically mixed, the result was, what the miners emphatically termed a *Salamander*, an alloy of iron, with the manganese, which resisted liquifaction, and crystallized even under the blast, so that all the metal was lost, the hearth demolished, and ten or twelve yoke of oxen necessary to drag away the paradoxical and useless metal produced.

This deceptive mineral, now abandoned for want of skill to reduce it, occasionally presents cavities lined with regular octahedral crystals, the sides of whose pyramids to each other as well as the the angles of the common base measure by the reflecting goniometer, according to Doctor Torrey, angles of 108.15. At Franklin it is but sparingly intermingled with the red oxyd of zinc. In about two miles to the north, the Franklinite bed ceases to be any longer discoverable at the surface, but continues more or less distinct for five miles further to the southeast, or seven miles in its whole range. Three miles from Franklin furnace, at Stirling, another mountain mass or huge cliff of this formation presents itself; but here the red oxyd of zinc forms, as it were, a paste in which the crystals of Franklinite are thickly imbedded—in fact, a *metalliferous porphyry!* On the sides of the seams, abundance of octahedral crystals of Franklinite are often well developed, while those of the interior are commonly pseudomorphous. Numerous illinitions of the carbonate of zinc appear throughout the interior of the mass. This ore, merely pounded and mixed with copper, has been profitably employed, during the scarcity of the late war, for forming brass.

Often, within a few feet to the west of the Franklinite bed, appear others of well characterized magnetic oxyd of iron, but always accompanied by hornblende rock. One of the most

profitable beds of iron ore was discovered on the very spot where stands the furnace; this highly magnetic oxyd so much esteemed is very intimately blended with plumbago, so as at first glance almost to resemble the siderographite of Doctor Torrey. In the latter, however, the iron is perfectly metallic; in this a protoxyd.

Among the more curious accompaniments of this metalliferous formation is the brownish yellow garnet, analyzed by Vauquelin, who found it entirely soluble in muriatic acid, which not only takes up the silex contained, but also the manganese, in consequence of its existing in the mineral at the minimum, of oxydation. The same substance has now also recently been analyzed by Mr. Seybert. It here forms a bed or vein six or more feet wide, and when occasionally in contact with the carbonate of lime exhibits imperfect dodecahedrons of a lustre and colour almost similar to idocrase.

Contiguous to the great bed of Franklinite, at Franklin, is interposed, as it were, in the crystalline carbonate of lime, which prevails to the east, a ledge of imperfect sienite, scarcely presenting any thing more than gray rocks of a binary combination of quartz and felspar. In these rocks occur beautiful opaque blackish-brown masses of garnet, of a high resinous lustre, and crystallized on the surface; it agrees in every respect, but the unimportant one of direct colour, with the melanite of Frascati, near Vesuvius; it is accompanied by a laminated epidote almost similar in appearance with the loböite, or idocrase magnesifere of Berzelius.

Contiguous to the same locality there is a vein or two, forming as it were the junction of the sienite and carbonate of lime, consisting almost exclusively of a nearly white and compact massive or minutely lamellar augite, in some parts intimately blended with specks of violet, granular felspar, resembling petrosilex; also silico-calcareous oxyd of titanium, brown garnet, dark green granular augite, like the coccolite of lake Champlain; something of nearly the same colour, which we suppose may prove the Gahnite, occasionally in octahedrons, and minute pale bluish green prismatic and translucent crystals, which

are probably phosphate of lime. These veins, which stand up in unaltered crests from the more decomposible carbonate of lime in which they are imbedded, present also on the surface druses of augite crystals.

A little distance from this vein there is another, apparently much broader in its dimensions, being a mixture in the mass, more or less intimate, so as to be often minutely granular, of green felspar of a colour from pale olive to that of carbonate of copper, black hornblende, whitish augite, mica, and occasionally silico-calcareous oxyd of titanium. In the cavities of this vein, and often considerably immersed below the surface, are, in considerable abundance, bluish green octahedrons of the spinelle, sometimes presenting truncations on the edges, but more commonly on the common base, and occasionally exhibiting cuneiform summits. The angle of coincidence of its faces measured on the reflecting goniometer, by my friend Doctor Torrey, are 109.23 ; it likewise scratches quartz, is infusible, and scarcely becomes paler by heat. The crystals are in size from the bigness of a pin's head to half an inch in length, the larger, of course, darker, and mostly breaking into splintery fragments, having internally a more or less perfectly conchoidal fracture, and high resinous lustre ; most of the crystals, when slightly rubbed, indeed, present the brilliance of polished steel; the smaller crystals are also so far translucent as to reflect a spendid coloured reflection, little short of that of the diamond. In these cavities they are commonly associated with augite crystals, quartz, hornblende, green felspar, crystals of phosphate of lime, and in two or three of my specimens imbedded mica, arsenical pyrites, and traces of galena. The affinity which these specimens bear to those of Vesuvius, containing Ceylanite is striking to astonishment, and I have even seen the brucite or condrodite, like that of Sparta, from Vesuvius.* No vestige of volcanic fires, more than the pseudo productions of the Missouri, have yet, however, been discovered in the territories of the United States.

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* In the cabinet of Mr. Wagner, junior, Philadelphia.

The CONDRODITE, or BRUCITE, almost peculiar to Sparta, discovered likewise by the celebrated Berzelius, in Finland, accompanied by gray spinelle, is, (according to an unpublished analysis, which I made in 1820,) a silicate of magnesia with an *accidental* portion of fluoric acid and iron. The same result has been obtained by Doctor Torrey, from whom I copy the following description of its crystallization. "It occurs occasionally in small four-sided prisms, (of a paler colour than the amorphous masses,) with rhombic bases of 124° and 56° truncated on the acute lateral edges by planes, which form with the contiguous sides of the prism angles of 122° and 114°. The prism is terminated by dihedral summits, whose faces meet under an obtuse angle, and correspond to the acute, truncated edges of the prism. The edges of the summits are oblique to the axis of the prism, but not parallel to each other; or they may be said to be alternately oblique at each extremity."

Haüy, also, by cleavage, had obtained from it a rhomboidal prism; and Berzelius, who then compared it analytically with his condrodite, concluded it to be identic. The former, with his usual sagacity, referred it to his peridot; as it does not indeed very materially differ in composition from olivin or amorphous hrysolite: still the crystallization proves it to be a very distinct species. It is of a bright brownish yellow, bordering on orange, disseminated in masses commonly about the size of a hazle nut, exhibiting more or less of the rhombic form, throughout a white and foliated lime-stone, generally containing scattered hexagonal lamina of plumbago, and, more rarely, bluish pellucid crystals of phosphate of lime. It is imperfectly lamellar in one direction, splintery in the other, with a glassy or almost resinous lustre, the fragments either translucent or almost opaque, and sufficiently hard to scratch glass. Before the blowpipe it is infusible, but with borax forms a glass, though not very readily. Its gravity is a small fraction above 3.

Throughout the valley of Sparta the condrodite is by no means uncommon, but variable in its appearance. The finest and clearest masses are obtained at the town of Sparta.

Though abundant at Franklin, it is here opaque and of a deeper tinge of colour. It occurs in regular subsidiary masses often towards the base of the calcareous beds, and contiguous to foreign infiltrations or veins. A mile south of Franklin furnace it is sometimes imbedded in massive augite, accompanied by mica and fluate of lime: the blue fluate here also forms slender illinitions in the marble. Near to this spot tremolite and small imbedded crystals of white augite? and actynolite occur; short crystals of augite, almost black, like those of volcanic rocks are also now and then visible; a beautiful apple green felspar as indicated by the goniometer, occurs imbedded in the crystalline carbonate of lime, accompanied by perfect crystals of mica, and hexagonal plates of plumbago; this felspar is unusually soft, and almost as fusible as hornblende. A very brilliant pale green hornblende passing into actynolite is often found massive and in implicated crystalline confused crusts over the surface of the calcareous beds.

This hornblende considerably resembles the *supposed* hypersthene of Delaware, recently analyzed by Mr. Seybert, who considered it as hornblende; it however gives the goniometrical measurement of hornblende, while the Delaware mineral, according to the observations of Doctor Torrey, gives by cleavage, a prism which is nearly rectangular, or with angles of 89° and 91°.

It forms, therefore, a new species, which we propose to name MACLURITE, in honour of him who has done so much for American geology and natural science in general.

According to Mr. Seybert, it contains, in the 100 parts: water 1,266; silex 52,166; deutoxide of iron 10,733; manganese a trace; alumine 4; lime 20; magnesia 11,333. From which an obvious affinity to augite presents itself, as it actually differs less in chemical composition from augite, than the two analyses of augite, given in Cleaveland, differ from each other; it fuses also with difficulty; but as the crystalline structure is essentially distinct, it must necessarily be considered as a species destitute of every affinity with hornblende, from which, at the same time it is scarcely distinguishable, except by the cleavage.

In another neighbouring locality, enormous green crystals of augite are found, some at least an inch and a half in diameter, presenting hexaedral or octahedral prisms, with almost equal faces, and terminated by oblique tetrahedral pyramids. These are accompanied, near the junction of the granitine or sienite, with large crystals of felspar, scapolite, or wernerite, and something which borders on spodumene. On the margin of the mill-pond, where some repair was making, a vein of arsenical pyrite, smixed with others resembling the sulphuret of cobalt or nickel, with a substance somewhat like blende, was found, and likewise accompanied by the condrodite.

In another limestone abounding with sphene, dark coloured granules, and minute crystals of augite, there are numerous and generally amorphous, dull grayish blue nodules imbedded, when by goniometrical measurement indicate some variety of fluate. It is nearly quite opaque, but fusible into a white enamel; both externally and internally dull, and minutely splintery or granular in the fracture. It is commonly so much penetrated by the carbonate of lime and titanium oxyd as seldom to present any angle which can be measured. Its hardness is about that of common fluor. It is very feebly acted upon by acids in the cold, but still slowly gives out minute bubbles. When examined it will probably prove the argillaceous fluate of lime, of which I have never seen specimens.

The crystalline calcareous rock, which here alternates with granitines of felspar and quartz, or with beds of sienite, (near to Doctor Fowler's house, the proprietor of the Franklin works,) disappears, and a confluent grauwacke, almost porphyritic, and contemporaneous apparently with the other formations, appears directly overlaid with an horizontal bed of gray minutely granular *secondary* limestone, containing organic remains of the usual shells and corallines, and layers of blackish hornstone or petrosilex. This rock, as well as the grauwacke *beneath*, presents disseminated crystals of blue fluate of lime. In the limestone the cavities are sometimes very numerous, and lined both with pseudomorphous masses and cubes of blue and white fluate and quartz crystals.

Thus we have here before us, as at lake Champlain, the novel and interesting spectacle of an union of every class of rocks, but *passing* decidedly *into each other* as if almost *contemporaneous!* If they are not contemporaneous, how do they happen to penetrate each other by veins? Why do they present similar mineral substances; similar organic remains? Why do the same relicks of plants occur over the anthracite of Rhode-Island, (which is occasionally penetrated even by seams of asbestus,) as over the bituminous coal-fields of Pittsburg and Richmond? Why are the beds of coal, at Richmond, in Virginia, penetrated by *veins* of *granite?*

Lastly, why are the same organic remains found in the *alluvial* limestone of Carolina and Georgia, as those of the Great Calcareous Platform west of the Allegany mountains? Are, in fact, those supposed epochas of time, believed to have intervened between the production of strata any thing more than an imaginary distinction of formations really allied, and as strictly dependent on each other, as the members of the same formation? The grauwacke and *Red* sand-stone, we perceive, contain organic remains; the grauwacke imperceptibly blends with the granitines, sienites, and greenstones of the Highlands. The hornblende rock and its metalliferous deposites unquestionably pass into gneiss; gneiss is foliated granite. Where then are we to seek for permanent distinctions? What is primitive—what transition—what secondary—but the alluvions of rivers and of seas? Of what importance is the inclination of strata, as the uppermost must necessarily be inclined at a decreasing angle?

I am, I must confess, attached to those plausible distinctions of things which tend so importantly to facilitate information and promote instruction; yet I would not wish to submit to the shackles of an imaginary system, or prostrate understanding at the shrine of an ambitious theory. Nature yet presents a wide field for contemplation; there are mysteries yet unravelled—prejudices which blind—systems which for the present impose, and which must ultimately vanish before the test of truth.

ART. XIV.—OBSERVATIONS ON ERGOT:—communicated in a letter to JAMES HAMILTON, M. D. Professor of Obstetrics in the University of Edinburgh, &c. By DAVID HOSACK, M. D. F. R. S. Professor of the Theory and Practice of Physic in the University of the State of New-York.

New-York, June 2d, 1822.

DEAR SIR,

You have probably seen, in the Medical Journals of this country, the various papers which have been published upon the use of ergot, spurred rye, or secale cornutum, in cases of difficult parturition. The testimony with regard to its specific operation upon the uterine system is very abundant, as you will see by adverting to the communications of Dr. John Stearns, Dr. William Moore, and Dr. Dyckman, of this city; of Dr. Prescott, of Massachusetts, and Professor Chapman, of Philadelphia, besides many others, to whom I might refer. In three cases of long protracted labours, wherein all the ordinary resources had been exhausted, the use of instruments excepted, and the patients' strength had become expended, I have, as the result of consultation, prescribed the ergot, giving it in infusion, and in the ordinary doses.

Its effect was within fifteen minutes after its exhibition, to excite the uterus to violent action, which did not cease but with the expulsion of the child. Although no evidence existed, previous to the use of the medicine, that the fœtus was not living, in every case in which it was administered the child was still-born. The same fact I have witnessed in the practice of others. The remark is made by an eminent and judicious practitioner of this city, Dr. William Moore, that the ergot has proved fatal to the child in every case in which he has prescribed it. "It appears," says he, "to be injurious to the child at all times; for in every case, in which I have seen it exhibited, the child has been still-born; and, in the greater part of them, it was not possible to restore it to life." This fact has been conceded even by those who have been most partial to the use of the ergot, and who have been in the

habit of prescribing it. It is also true, that, since the introduction of the ergot, the number of still-born children, noticed in the obituary of this city, has greatly increased,—insomuch, that an inquiry has been instituted by the Medical Society of the County of New-York, and a committee appointed to prepare a statement of the facts on this subject. The ergot has been called, in some of the books, from its effects in hastening labour, the *pulvis ad partum;* as it regards the child, it may with almost equal truth be denominated the *pulvis ad mortem*—for I believe its operation, when sufficient to expel the child, in cases where nature is, alone, unequal to the task, is, to produce so violent a contraction of the womb, and consequent convolution and compression of the uterine vessels, as very much to impede, if not totally to interrupt the circulation between the mother and child. It is stated by Dr. Chapman, in his observations* on the effect of ergot, that it has been used, by himself and others, in a hundred cases, without doing harm, in any respect. A similar remark has been made by others. I will not call in question the correctness of these observations; but in the cases referred to, I apprehend the medicine has been employed where the impediment to labour has been very incons iderable, and the child was readily expelled under its influence, and where perhaps no necessity whatever existed for the use of the medicine, and where nature, left to herself, would have readily accomplished her work.

In the first case in which I prescribed it, the lady, previous to her pregnancy, had been many years married without proving with child, owing to dysmenorrhœa and fluor albus, which we know are oftentimes associated—the latter disease being generally consequent upon the former. Since her delivery, the same painful and sparing menstruation has recurred; and, although nearly three years have elapsed since her lying-in, and she has enjoyed, in other respects, good health, she has not been a second time pregnant.

In the second case, the lady has not menstruated since

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* See Therapeutics, vol. ii. p. 14.

her confinement, which took place in October, 1820; nor, consequently, I may add, has she proved pregnant. I say consequently, for we know that the exceptions are so rare that impregnation takes place where the catamenia are suspended, that it may be considered as a general observation, that menstruation is necessary to conception. At the same time that I relate the fact of the diminution of the menstrual discharge, in the one case, and the suspension of it in the other, as following the use of the ergot, we should be cautious not to connect these events as, in all cases, cause and effect, until further experience shall justify such inference.

In the third case in which the ergot was administered, the child was living a few minutes before the medicine was taken. Severe pains immediately succeeded to its use, and were continued, without intermission, until the delivery was accomplished: but, to the astonishment of all present, the child was still-born; and all endeavours to restore it were employed without success.

When, in connexion with the above cases, we advert to the numerous instances recorded of the fatal effects of the ergot upon the fœtus in utero, have we not reason to proscribe, altogether, the use of this medicine in difficult labours, and, as heretofore, in such cases, to place our dependence upon that safer resource, the forceps?

But while, like other potent articles of the materia medica, the ergot proves detrimental under certain circumstances, and is liable to much abuse from its improper administration, nevertheless, by its active operation upon the womb, it promises to be very extensively useful in counteracting many morbid conditions to which that viscus is liable, especially those proceeding from an inactivity in the muscular powers of the uterus, or a lax state of its vessels. Under the former head may be noticed the retention of the placenta, and the disease called physometra: under the latter are, excessive discharges of the lochia, fluor albus, and those uterine hæmorrhages, which proceed from, and are continued by, general and local weakness.

This leads me to the main object I had in view when I commenced this letter, to relate a case of uterine hæmorrhage in which I directed the ergot with the most decided benefit, when other means had been employed in vain.

Mrs. L——, a lady about fifty years of age, of a plethoric but relaxed habit of body, ceased to menstruate about four years ago. Since that time she has evinced the ordinary symptoms of fulness of the blood vessels, that frequently supervene upon the cessation of that function—viz: a sense of distention and pain in the region of the uterus; a fullness of the breasts; oppression of the chest; frequent head ach and giddiness. By blood-letting these have been several times removed; but neglecting this remedy when those feelings returned, uterine hæmorrhage was the result, followed by great loss of strength. In this debilitated state, in which further depletion was forbidden, I had recourse to the various vegetable and mineral astringents, administered internally and externally, but without effect; cold also was applied to no purpose. In this lax state of the uterine vessels, I directed 10 grains of the ergot to be given in substance three times a day. In a few minutes after the exhibition of each dose, it was followed by the uterine nisus, which immediately stanched the discharge. In a few days, by suitable nourishment, and the continuance of the tonics which she had before employed without the effect of restraining her discharges, she recovered her strength.

In the course of the last month, she experienced some return of the hæmorrhage; but. by a few doses of the ergot, the discharge was as immediately restrained as it had been in the first attack.

Seeing these effects of the ergot in producing uterine contraction and in checking hæmorrhage, it has occurred to me, that it promises to become a valuable medicine, in those cases of uterine hæmorrhage that proceed from an attachment of the placenta to the neck and orifice of the womb. The os uteri being dilated, there is certainly much less danger to be apprehended, either to the mother or the fœtus, from the rapid succession of pains, the effect of the ergot, than from the intro-

duction of the hand and turning the child—the practice usually directed in cases of this nature.

In two instances of hæmorrhage, attendant upon the attachment of the placenta over the orifice of the womb, by passing a finger on one edge of the placenta, I ruptured the membranes and discharged the waters ; pains immediately succeeded, and the delivery was speedily accomplished with safety, both to the mother and child. Had I at that time been acquainted with the effects of the ergot, I certainly should have prescribed it, for the purpose of hastening the delivery.

Upon suggesting to Doctor Moore this application of the ergot, he so earnestly concurred in the propriety of the measure, that he at once expressed his determination to give it a trial in the first case of uterine hæmorrhage of this nature that may fall under his care.

Another circumstance occurs to me as favourable to this application of the ergot : that the attachment of the ovum to the orifice, or neck of the womb, never takes place but in those women who have borne many children—in other words, in those cases only where the cavity of the uterus has become enlarged by frequent pregnancies, and consequently accompanied by a correspondent enlargement of the uterine vessels and a propensity to hæmorrhage. In cases of this nature I believe the ergot will prove a valuable resource.

I am, dear sir, with sentiments of great respect,

Your obliged friend and pupil,

DAVID HOSACK.

JAMES HAMILTON, JUN. M. D.

REVIEW.

Art. I. System of Surgical Anatomy, *Part First, on the structure of the Groin, Pelvis, and Perineum, as connected with Inguinal and Femoral Hernia; tying the Iliac Arteries; and the operation of Lithotomy. Illustrated by nine Copperplate Engravings.* By William Anderson, Licentiate of the Royal College of Surgeons in Edinburgh, and Lecturer on Surgical Anatomy in New-York. 4to. pp. 199. New-York. J. V. Seaman.

The author of this work is a young foreigner, who has lately established himself in this city, and is reputed as possessing acquirements of no mean value, in surgical and anatomical knowledge. The production before us will contribute but little, we fear, to enhance the reputation which he may already have acquired. Not that it betrays any particular want of acquaintance with the subject of which it treats, but because it tells us so little that is really new, and which cannot be found in the standard works of the day, expressed, too, in language far more correct and perspicuous. Dr. Anderson may be, and we doubt not is, really a good anatomist, but he is most assuredly a very bad writer. Almost every page of the work before us shocks us with the grossest inaccuracies of style and language—a sin the more unpardonable, inasmuch as it stands unredeemed by any vigour of thought, or strength of diction. That we may not be accused of hazarding random assertions, unsupported by direct proof, we shall offer a few specimens of our author's mode of writing, taken from the "prefatory address to the students composing his class in Murray-street." The very first paragraph begins thus:

"I am induced to occupy the opportunity before us, to *impart* to you upon the nature of this work."—p. vii.

Again ;

" Hernia is a disease, the operations for which, are formidable and *big with events* to the patient."—p. viii.

Prophesying the manner in which his work would be received, he tells his students,

" You will have an opportunity, with myself, of observing the manner in which the public will receive this part of the subject ; for the critics no doubt will do it the honour of notice, either to decry innovation, or perchance to recommend it : but whichever course they may be pleased to take, *I can here make my own comment.*"—p. ix.

As a specimen of our author's turn for satire, take the following :

" In the chapter upon the operation of lithotomy, I have observed much precision, lest I should lead the student's attention from the anatomy I had previously described ; otherwise I might have introduced the subject *by an essay on the doctrines of Bacon,* and apply them to the expediency of possessing anatomical knowledge as the only authority for surgical practice ; then afterwards amuse my reader with a ludicrous detail of the freaks of the gorget ; preceding it by a history of the several quacks to whom had been assigned the office of the cutting for stone ; to point at from among them, to the intinerant Monk of the third order of St. Francis, as having cut the most with success ; and afterwards brighten the detail, by recording the parliamentary gift of five thousand pounds sterling to Mrs. Stevens, for rendering the operation altogether unnecessary :—when, by a separate section for the purpose, I might descant upon the various improvements and modifications undergone by the gorget, together with the introduction of the *bistouire cachee,* in exemplification of it having been thought possible to construct surgical instruments that were already endowed with the rational faculty, and requiring only a simple push to accomplish the successful performance of a capital operation."! ! !—p. x.

All this, we doubt not, Dr. Anderson might have accomplished ; but we really think it very fortunate, both for himself and his readers, that he has left it unattempted. It would

certainly be a work of supererogation to assign our reasons, for the purpose of convincing our readers of the correctness of this opinion; and we therefore hasten to give a few more "elegant extracts" from our author's "Prefatory Address."

Descanting on the importance of associations in assisting the memory, he presents us with the following illustration, upon which we believe comment of any kind to be wholly superfluous:

"If the idea, for example, of the internal abdominal ring should come up in his mind, there would necessarily be *rallied* forth, and by the influence of this ideal attraction, the whole train of neighbouring parts; when immediately will be produced a perfect picture of the relative anatomy of inguinal hernia, almost equal to qualify the surgeon to commence the operation. This picture will be more perfect than any at the end of this work; inasmuch as they make but second hand impressions, while the other is a first edition from the book of nature itself. Solomon must have hinted at a principle like this, when he said, 'Get wisdom, and with all thy getting, get understanding:' he plainly intended to have directed the mind to the true and genuine sources of inquiry, from which only, proper information was to be obtained."—p. xiii.

The most amusing, and perhaps the most original part of this address, is, the description which our author gives of the qualifications of an operating surgeon. "An operating surgeon," he tells us, "should be a *clean* dissector." Again; "As he is frequently called to cut within a *hair's breadth of a patient's life*, it is highly necessary, indeed, that he knows where he *treads*"—that is, we presume, when performing an operation a surgeon should look at his feet.

"But it is necessary also that the surgeon be the medical philosopher; he must be the complete physician; he must have the *brain of a man of science;* for this is the great and high qualification that the operator should possess: he must know when to operate, as well as how to operate; and he must be able, moreover, to anticipate the issue of his patient's case."—p. xiv.

Take it all together, this is certainly a most exalted description of what a surgeon *should* be; and it undoubtedly proves

that the views of Dr. Anderson are those of a man deeply impressed with the importance and high responsibilities of his profession. But. after all, we cannot help thinking it is rather extravagant, and savours more of "fancy than of fact." That an "operator" should be a clean dissector," we are willing to admit—that he should "know where he treads," too, we grant with equal readiness—that he should know "when to operate, as well as how to operate," we consider indispensable; but when we are told that an "operator" must be the "medical philosopher;" the "complete physician;" and, over and above all these high qualifications and attributes, must have "the brain of a man of science"—we are compelled to demur. Let it be remembered that our author is speaking of the "operator," and not of the philosophical surgeon, whose highest ambition it is, in all cases, to obviate the necessity of an operation, rather than to exhibit his dexterity in the mere butchery of his profession. As far as our observation extends, these two characters are widely different from each other; and facts have convinced us that to be a mere "operator," and a good one, too, requires neither the brain of a man of sense or of science, nor one spark of medical philosophy.

But it is time that we should take leave of our author's Introductory Discourse, which, on a variety of accounts, it is to be regretted he ever published. It is decidedly the worst part of the book, and, we doubt not, has alone decided the fate of the author with more than one reader. The rest of the work, although characterized by the vices and defects of which we have already spoken, is much more reputable, both as to manner and matter. Some portions of it, indeed, we think are peculiarly interesting to the surgical anatomist, and these it shall now be our business plainly and candidly to spread before our readers.

In treating of Hernia, our author gives a description of the crural arch, differing entirely, we perceive, from the commonly received doctrines on this point. As the subject is important, and has given rise to a good deal of discussion, we shall quote, at length, what he says concerning it.

" The CRURAL ARCH. I am perfectly aware, that in the majority of instances, what I am about now to delineate, has the appearance of unity with Poupart's ligament ; but from having so often seen them separate, I have ventured at a method of description, which is a little out of the common order, pursued by anatomists. I am not, however, altogether without precedent for this plan, since Mr. Hey, in the first edition of his Practical Observations on Surgery, had adopted it ; and moreover, as Mr. Robert Liston has written a book solely upon the subject of the crural arch.

" In the course of my late dissections, I have been frequently led to a very careful examination into the ligamentous structure at the groin ; in order that I might satisfy myself of the particular disposition of those tendinous fibres, which form the ultimate seat of stricture in femoral hernia.

" As was to be expected, I found the ligament, of Poupart, running in a straight direction, after the parts connected with it were in a relaxed state ; but I also observed, what has been described as the third insertion of the external oblique muscle, to be a considerable ligamentous band, running in an arched course, in the direction of the anterior part of the crural sheath, having its inner attachment from the ligament covering the spinous ridge of the pubis, about an inch from the tuberosity ; and outwardly, its fibres seemed to seek connexion with the inferior anterior spinous process of the ilium, by going between the psoas and iliacus muscles, as they come out of the pelvis.

" This crural arch at its inner and upper part, I have seen in many instances, quite distinct from Poupart's ligament, having only a membraneous joining with it, similar to that uniting the two columns of the tendon, of the external oblique, as they go to form the external ring. At about the centre of this arch, however, the fibres become in close contact with Poupart's ligament, and firmly adhere to it, by which their arched course is sustained ; yet the fibres are not incorporated here with those of Poupart's ligament, as can be determined by maceration. After passing this centre, the fibres of the crural arch are again separating from those of Poupart's ligament, and are disappearing between the psoas and iliacus internus muscles. Thus we have a ligamentous structure, distinct from Poupart's ligament, distant from the tendon of the external oblique, having attached to it, in close union, the process of

fascia transversalis, that descends into the thigh, and prescribes the limits to the mouth of the crural sheath. It is this which Gimbernat found only necessary to divide, to relieve the stricture in femoral hernia; and it is this, also, to which Mr. Hey, in the first edition of his Surgical Observations, has given the name of the femoral ligament.

"Now, although the separation between the fibres, of what I have here called exclusively, the crural arch; and those of Poupart's ligament, is not always to be found equally distinct; yet the arched course of the one set, I believe to be always present, in opposition to those of the other, which from the nature of their attachment, must run in a direct line. That the crural arch is always to be found, is proved by the acknowledged invariable oval shape of the mouth of the crural sheath, when beheld from the abdominal aspect.

"To the fact then: that immediately in contact with and over the anterior part of the mouth of the crural sheath, binding it down from the linea-ileo-pectinea, at about an inch from the tuberosity of the pubis, to the os ilium below the superior spinous process; are tendinous fibres running in an arched direction, and placed, throughout their course, from being in contact with, to within the distance of an inch below Poupart's ligament; also that, it is the sharp and inner edge of this, which becomes the principal and ultimate seat of stricture in femoral hernia;—does this practical inference follow?—that we are not to expect much relief to the strangulated intestine, in femoral hernia, by elevating the thigh and relaxing the muscles and fasciæ, connected with Poupart's ligament. Hence, we are not to hold in high expectancy, the reduction of a femoral hernia, by the taxis; for we are told by Sir Astley Cooper, that, 'in the inguinal hernia, the parts are so connected mith muscles, that any relaxation brought upon these, affects the aperture through which the hernia descends; but in the crural hernia, the seat of the stricture is in parts less connected with the action of muscles, and general relaxation has but little effect upon them' and 'the delay of the operation, which I lamented and condemned, when speaking of inguinal hernia, is to be still more deprecated in the crural; for death very generally hap-

pens earlier in the latter disease than in the former.' And Mr. Lawrence, also, notwithstanding he has disagreed with Mr. Hey's notions, of a femoral ligament or crural arch, distinct from the ligament of Poupart, speaks with some emphasis, in reference to the hope, that is to be entertained, for the reduction of a femoral hernia by the taxis. 'Let the practitioner remember, that the smallness of the mouth of the sac, and the consequent tightness of the stricture, diminish the chance of effecting a replacement of the rupture, by means of the taxis; and consequently, that when the incarceration is completely formed, he should not waste much time in attempts of this description.' "—pp. 61—64.

The following is our author's account of his mode of tying the external Iliac. In some respects it differs from the method usually adopted, and is therefore entitled to the attentive consideration of those who may be called to perform this important operation:

"THE OPERATION FOR APPLYING A LIGATURE TO THE EXTERNAL ILIAC ARTERY.

"The patient is to be placed upon a table, as for the operation for hernia, and his groin being shaved, the surgeon will proceed with a scalpel, to make an incision through the common integuments, commencing at about an inch from the anterior superior spinous process of the ilium towards the pubis. This incision will be carried for a little short of three inches in length, in a line about half an inch above, and nearly parallel to Poupart's ligament; its inner extremity taking a slight curvature upwards, that it may end over the spermatic chord as it passes through the external abdominal ring. The integuments will be dissected downwards, until in a line with the ligament, then upwards for about an inch, throughout the whole course of incision. By this the tendon of the external oblique muscle is to be cleanly laid bare, and afterwards divided for two inches and a half in the direction of its fibres, the incision terminating a little short of the external abdominal ring. This cut will also take a course about half an inch above Poupart's ligament. The tendon is now to be elevated by the handle of the knife, from off the internal oblique

muscle, so that the oblique canal may be clearly exposed. This will be found of easy accomplishment, for it is only connected to the parts below by a very delicate reticular membrane, which can be readily broken through.

" The spermatic chord will now be seen taking passage towards the external ring, from under the edge of the internal oblique muscle, about two inches from the pubis. This part is to be lifted on the finger in order that its sheath, the cylindrical process of fascia which proceeds from the ring, may be opened. This will be done by lifting the pellicle with a pair of dissecting forceps, and then cutting slightly with scissors or scalpel. When this is accomplished, the little finger of the right hand will be passed into the opening, and the sheath will direct it to the internal abdominal ring, immediately behind which, will be felt the pulsation of the external iliac artery.

" The peritoneum will not be found much in the way in this operation. Pressing against its angle with the finger a little, will elevate it sufficiently to allow of the artery being secured. It will be remembered that this membrane leaves the anterior abdominal parietes some little way above Poupart's ligament, to turn upon the iliacus and psoas muscles and the iliac vessels. It therefore takes a free course at this part, and does not make an acute angle with itself, as it would if it was continued down, before and behind, to be attached to the back edge of Poupart's ligament.

" An aneurismal needle of silver being now introduced through the internal abdominal ring, it will be insinuated under the artery from its outer side, and moved a little below, that the vessel may be separated from the fascia iliaca, with which it is pretty firmly connected ; as well as from the iliac vein to which it is also attached. The artery will now be elevated through the ring. This will be accomplished more readily by raising the thigh towards the abdomen, and then a silken ligature of sufficient size is to be passed through the eye of the instrument, that it may be drawn under the vessel. The artery will now be tied above the going off of the epigastric and circumflexor ilii vessels, and the ligature, when the part is dressed, is to be allowed to remain without the external wound. One or two interrupted sutures may be applied

through the integuments ; and when a slight compress and a bandage have been added, the patient may be put to bed.*" pp. 143—145.

It is but just to add, that Dr. Anderson acknowledges that " this method for taking up the external iliac artery, he had seen practised by Sir Astley Cooper."

On the subject of tying the Aorta, Dr. Anderson tells us that he would not hesitate to perform the operation, in any case where it might promise to rescue the patient from immediate death ; and he thus describes the different steps of it :

" I would commence an incision beginning over the extremity of the last or twelfth rib of the left side, and continue it through the common integuments as far as the anterior superior spinous process of the ilium. Thus I would lay bare the external oblique muscle, which I would divide for the same extent ; this incision would be almost in the course of its fibres. The internal oblique and transversalis muscles I would also divide in the line to the extent of the first incision. These muscles readily retracting, would expose the fascia transversalis, which part I would lift with a pair of dissecting forceps, and open it as directed in the case of a hernial sac. I would then introduce my finger, and extend its division by means of a bistoury as far as the first cut through the common integuments, being cautious to avoid any injury to the peritoneum underneath. I would after this, elevate the peritoneum from the posterior abdominal parietes, by insinuating two fingers, while I supported with the other hand the part raised, until I had separa-

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" * This method for taking up the external iliac artery I have seen practised by Sir Astley Cooper, and in that way I have twice performed the same operation in the living subject. I was pleased to find how much could be accomplished after the tendon of the external oblique was cut through, without the use of a cutting instrument. It is necessary however for me to state, that my two cases terminated unfavourably, from the circumstance of their being in both instances connected with comminuted fracture of the thigh bone, which extended within the cavity of the hip joint ; the operations being performed for the purpose of restraining hœmorrhage which attended sloughing, the consequence of the injury ; but they had the effect of prolonging the lives of the patients in the one instance for welve, and in the other for eighteen days."

ted as far as the attachment of the mesentery, in the forepart of the lumber spine. I should now see and feel the artery above its bifurcation, and be able, with a properly curved aneurismal needle, to pass a ligature around it, and draw the knot by the contrivance made use of for the extirpation of the tonsils.

"To facilitate such an operation, as remarked in Sir A. Cooper's case, it would be expedient to approximate the shoulders to the pelvis, that the abdominal muscles might be relaxed; and also, previously, to empty the intestinal canal, that no difficulty should be experienced in elevating the peritoneum, from the pressure of the abdominal viscera."—p. 150.

It will at once be observed by our readers, that the operation proposed by Dr. Anderson differs materially from that performed by Mr. Cooper. In the case of Mr. C. the first incision was made in the course of the Linea Alba, after which it became necessary, of course, to divide the peritoneum. In the plan proposed by Dr. A. this necessity is obviated. And when it is recollected how much our success must depend upon avoiding every possible source of irritation, it cannot but be admitted, that our author has recommended an essential improvement in an operation, always hazardous, but which we do not hesitate to say is, under certain circumstances, perfectly proper and justifiable. We are aware that a different doctrine has been advanced on this subject. Facts, however, are decisive. Our author gives us the details of more than one case, in which, on dissection after death, the canal of the aorta has been found obliterated. Reasoning from such facts, it seems clear that the aorta may be tied without any immediate danger to the life of the subject: and, in those hopeless cases where every other resource of art is unavailing, we can perceive no one sound or even plausible reason that can be urged against its performance.

The remaining portion of our author's work is on *Lithotomy*. This is justly considered one of the most important operations in the whole range of surgery. It has accordingly engaged the attention of many distinguished surgeons; and so much has already been written on the subject, that originality in any new publication is scarcely to be expected. There is no end, indeed, to

what are styled improvements in cutting for stone in the bladder. Almost every surgeon who has had one or two opportunities of operating, conceives himself sufficiently enlightened to propose a new method. Were we disposed to review the operations for stone, from the earliest ages of surgery down to the present day, we should find little difficulty in showing that most of these pretended improvements were only the revival of some old and exploded notions. We are, however, far from believing that lithotomy is susceptible of no further improvement. On the contrary we think there are few surgical operations which require more to be reformed. The different methods now employed for extracting calculi from the bladder, and the different kinds of instruments that are made use of, prove sufficiently the unsettled state of this department of surgery. The *lateral* operation, it is true, is generally practised; but there are not wanting distinguished lithotomists who employ a different method. The *high* operation is, under certain circumstances, still considered proper; and, lately, what is called the *recto-vesical* operation has been recommended in strong terms to the consideration of surgeons, as possessing advantages over both the other methods. The recto-vesical operation, to which we here refer, differs from the one performed by Mr. Dupuytren, and several Italian surgeons. The merit of the discovery belongs to Mr. Sanson, who first described the operation as possible; but it does not appear that he ever performed it. The method, as originally proposed by Mr Sanson, has been adopted by Professor Vacca, of Pisa, one of the most distinguished surgeons of the present day, to whom the profession are indebted for an interesting memorial on the subject, in which he gives an account of several cases that have been operated on by himself and others; and which cannot fail in directing the serious attention of surgeons to this subject. We regret that our limits will not permit us to give a description of Professor Vacca's method of operating.

Anatomy is the basis of all surgical reasoning, the sole guide of operating; and in no operation perhaps is correct anatomical knowledge more necessary that in the one now under con-

sideration. We have, it is true, by the invention of instruments gliding along each other by means of buttons and groves, and other awkward contrivances, deprived ourselves of many advantages which might be derived from our knowledge of anatomy. Nothing can be more unsurgical than the sudden, and, as it were, blindfold push of the gorget or cutting director into the bladder, by which that organ may be transfixed, or the instrument driven among the viscera of the pelvis. The operation with the gorget, however, has been approved, and no doubt will continue to be performed. It is perhaps to be lamented, as observed by a celebrated writer, that lithotomy was even brought to that kind of perfection, which may induce ignorant men to venture upon an operation which, even thus simplified, requires consummate skill and knowledge. But we must return to the work of our author.

Dr. Anderson first gives a detail of such anatomical structure, as may claim the attention of the operator in cutting for the stone in the bladder. In this part of his work, we do not discover any thing which requires our particular notice, except the description of what he denominates the "*Ileo-Vesical Fascia.*" As the author attaches much importance to this fascia or pelvic partition, and lays down as a maxim, that it is to be particularly avoided by the cutting instrument, in the operation for lithotomy—we will insert the description of it in his own words.

"Ileo-Vesical Fascia. Having observed what was to be seen immediately under the peritoneum, we are now led to give attention to a tolerably dense though semi-transparent membrane, covering the iliacus and psoas muscles, and named fascia iliaca. This will be perceived at the inner side of the crista of the ilium, continuous with the fascia transversalis, and to have boundaries as defined in a former part of the work, while upon the anatomy of hernia. I shall now enlarge upon that description, and describe it as I have traced it in connexion with the urinary bladder.

"We accordingly find the iliac fascia after lying under the iliac vessels, passing into the cavity of the pelvis; by going over the brim from the symphysis pubis to the ileo-sacral articulation, on

each side. For some way down it has close adhesion to the side of the pelvis ; and this is as far as the lower part of the symphysis pubis on its forepart, the hole for the transmission of the obturator vessels and nerve in the middle, and as low as the spinous process of the ischium behind. At a line running from these parts it is reflected inwards to have attachment to the side of the bladder—so that it leaves the side of the pelvis by a semi-elliptic course, convex towards the abdomen. We also find it connected to the side of the urinary bladder by a line of attatchment of a similar curvature. This line commences above the situation of the prostrate gland, after having proceeded from the upper surface of the membraneous urethra ; from these parts it rises upwards in conformity to the nature of the curve which is here also convex towards the abdomen : taking this direction, it reaches the opening in the side of the bladder which receives the ureter, and afterwards has a course downwards and backwards, to end at the extremity of the vesicula seminalis.

" There is therefore a loose portion of iliac fascia situated between the side of the bladder and pelvis. This I have called ILEO-VESICAL. It is in breadth anteriorly about half an inch ; becoming gradually wider, is opposite the hole for transmitting the obturator vessels an inch and a half: and then getting narrower, is in the neighborhood of the spinous process of the ischium, less than an inch wide. In looking at the upper surface of this ileo-vescial reflection, we observe that it dips behind the pubis, so that on each side of the symphysis there is a pit or pouch, which is of size to receive the end of the finger. This portion of fascia appears at first view to be of tendinous structure, being more dense and of a different texture from the fascia iliaca covering the muscles in the hollow of the ilium ; which is owing to a circumstance that does not dispute its continuity with the fascia iliaca, and is to be attributed to the tendinous connexion of a part of the levator ani, that will be more distinctly explained when we come to another part of the dissection.

" Fom this aspect we can see, between the line of attachment of peritoneum to the urinary bladder and that made by the fascia, the muscular coat of this viscus covered by a thin membrane, which is a lamina, (THE SUPERIOR LAMINA OF THE ILEO-VESICAL FASCIA,)

sent up by the ileo-vesical fascia ; and it is by it that this part of the bladder is supported and made equally strong with that defended by peritoneum. This lamina, by sending a process anteriorly from the bladder to the posterior part of the symphysis pubis, forms an anterior ligament to the bladder, which becomes a partition by dipping between the anterior connexions of the ileo-vesical fascia ; and fixing itself to the upper part of the membraneous urethra, aids in forming the two pits or pouches referred to in the last paragraph.

" From this view of the parts, there can be also observed a deep pit behind the bladder, bounded by this fascia, and occasioned by the particular dipping of its posterior part. Into this urine might find access in the high operation for stone ; whence I know not how it could be extricated. Into this I also believe extravasated urine finds a place from the lateral operation by the gorget, in consequence of the manner in which this instrument is sometimes introduced, as shall be noticed when we come to another part of the subject.

" It can moreover be observed at this stage of the dissection, how the peritoneum, as it passes to the rectum, has its angle of reflection just where the ileo-vesical fascia ceases to have attachment to the posterior part of the side of the bladder ; so that it becomes the upper and posterior boundary of this bag into which the urine is likely to fall, from the unguarded use of the gorget in lithotomy. It will now be perceived, that urine thus situated, in however small a quantity, will be in contact with the outer or under surface of this highly sensible membrane. If this is substantiated, I think we have a ready solution to those cases of death after the operation of lithotomy found upon record, and involved in mystery, not having attached to them any rational explanation for the fatal event."—pp. 165—167.

Our author recommends the lateral operation, and concludes his work by a brief review of the different methods that have been adopted for extracting calculi from the urinary bladder. He very justly condemns the use of the gorget, and employs in its stead a beaked knife with a blade of the shape and length of the common probe-pointed bistoury, but of greater strength, proportioned to the parts to be divided. The objections to the gorget are numerous and well-founded. A large

number of the best modern surgeons prefer the knife. There may be some choice in the particular kind of knife to be used; but in the hands of one acquainted with the anatomy of the parts, and who has considered the true principles of the operation, the bladder may safely be cut into by almost any kind of knife. A common bistoury, or almost any scalpel will answer the purpose.

But it is time for us to close. We have designedly extended our notice of the present production, because we really felt every disposition to do ample justice to its author. Of the general execution of the work, it has been impossible for us to speak in terms of commendation. At the same time, we are happy to admit that, throughout, it gives evidences of great industry—of an extensive acquaintance with surgical anatomy—and of an honourable and praiseworthy ambition.

In conclusion, we cannot omit giving our unqualified approbation of the mechanical part of the work. The engravings are beautiful; and the whole is got up in a style of elegance quite uncommon in the history of medical publications in this country, and conferring no small credit upon the taste and liberality of the publisher.

ART. IV. AN ESSAY *on the* CHEMISTRY *of* ANIMATED MATTER. By JOHN PATTEN EMMET, of New-York. New-York: C. S. Van Winkle. 8vo. pp. 125. 1822.

AN INAUGURAL DISSERTATION *on the* SANGUINARIA CANADENSIS *of Linnæus.* By FITZGERALD BIRD, of Georgia. New-York: H. Sage. 8vo. pp. 74. 1822.

ALTHOUGH the importance of the medical profession is universally acknowledged, and the necessity of proper regulations obvious,—it is only of late that, in this country, it has been subjected to such restrictions as can, in any degree, tend to its due advancement and respectability. Thanks, however, to the good sense of the community, and to the vigilant care of the proper authorities, we have now laws to protect the lives of our

citizens from the mal-practice of pretenders; nor is "any man permitted," as in the time of our colonial historian, Smith, "to set up for physician and chirurgeon." Many individuals, no doubt, still procure a full practice and profitable subsistence, at the expense of the lives of the community; but the career of quackery is evidently on the decline; and the directors of our public councils have the satisfaction already to observe the benign and salutary effects of their well directed patronage.

Among the means which have greatly contributed to these happy results, the College of Physicians and Surgeons established in this city, by the honorable the Regents of the University, has been, by far, the most efficient and powerful. Although a recent foundation, its influence has been widely and beneficially extended: while every year adds to the number of its pupils; the zeal of its professors and the requisitions of its statutes have gradually augmented; and it now stands on a proud elevation of dignity and character.

The publication of an inaugural essay, as evidence of the talents and attainments of the candidate for medical honours, is compulsory in most of the schools of Europe. Nothing but the difficulty of abolishing long established customs can account for the continuance of so absurd a regulation. The expense thus added to education is both oppressive and useless; and experience has shown that the author on the title page is not always even the compiler of the crudities which the work contains. A wiser course has been adopted in America. Inaugural exercises are indeed required by our statutes; but the writer assumes the responsibility of publication, and appears before the tribunal of criticism a voluntary candidate for fame.

The two essays, the titles of which are prefixed to this article, emanate from the school of New-York; and are, in a high degree, honourable evidences of the talents and attainments of the writers. We shall attempt merely a notice of the design and objects of each.

Doctor Emmet begins his dissertation by urging the importance of the study of the principles of vitality; and thinks that they are less difficult to ascertain than is generally suppo-

sed, and involved in no greater mystery than is thrown over the other forms of creation.

It is singularly unfortunate for this position, that so little has been done in this science, especially when we advert to the talents which have been applied, from the earliest times, to this favorite theme of philosophers.

Doctor Emmet does not hesitate to assert, that life and its phenomena are the effects of organization : in his own words, "the consequence of material composition." page 13. "Life," says he, in another place, "is nothing else than the *aggregate effect* of numerous material organs endowed with an irritability which subjects them to be constantly stimulated into peculiar and appropriate actions." page 18.

All who have traced the progress of the sciences must be aware of the predominating influence which a fashionable branch of knowledge exercises. In the time of Sir Isaac Newton every phenomenon in nature was accounted for on the principles of the mechanical philosophy, at that time so successfully applied to the explanation of the system of the universe. At all times medicine has been too subservient to the impulse of the other sciences ; and the different theories which have prevailed, form no imperfect index to the current modes of thinking and habits of study.

Chemistry, in its turn, has latterly given a bias and direction to physiological theory. Prescribed by our colleges as a part of professional study, its influence will ever be felt ; and yet we are induced to believe that it will lend its chief aid to the materia medica : nor do we think that it will effect any memorable change in medical practice. The living machine owes allegiance to other than chemical and physical laws.

Life is the triumph of some unknown cause over matter and the laws by which it is governed ; and it is no less philosophical to believe in some superior agency, to which matter is subservient, than to refer the ordinary operations of nature to chemical affinities. The assumption is altogether gratuitous, that life is the result of organization, and all analogy is opposed to such hypothesis ; inasmuch as during life the affinities of mat-

ter are modified or suspended; and it is only when life is extinct that the ordinary physical agencies are restored.

This dissertation exhibits, throughout, marks of a vigorous and cultivated mind; and we cannot but regret to perceive so much ingenuity wasted on an unattainable object. Let us be permitted to remind Doctor Emmet, that chemistry is a science eminently practical, and capable of results eminently useful and brilliant; but that the phenomena of life are beyond its reach. It is not a very distant period since philosophers attempted, by the retort and alembic, to convert all metals into gold, and extend life into immortality; and it needs little sagacity to foretel, that these agents, however powerful and adequate to explain the properties of matter, will be as insufficient to explain the properties of life as formerly to prolong it.

On this occasion, we shall avail ourselves of the judicious and accurate observations of that eminent chemist, Dr. Thomson, whose authority none will dispute.

"What is the power which prevents the gastric juice from acting on the stomach during life? Certainly neither a chemical nor mechanical agent, for these agents must still retain the same power after death. We must then, of necessity, conclude, that there exists in the animal an agent very different from chemical and mechanical powers, since it controls these powers according to its pleasure. These powers, therefore, in the living body are merely the servants of this superior agent, which directs them so as to accomplish always one particular end. This agent seems to regulate the chemical powers, chiefly by bringing only certain substances together which are to be decomposed; and, by keeping at a distance those substances which would interfere with, or diminish, or spoil the product, or injure the organ; and we see that this separation is always attended to, even when the substances are apparently mixed together; for the very same products are not obtained which would be obtained by mixing the same substances together out of the body, that are produced by mixing them in the body; consequently all the substances are not left at full liberty to obey the laws of their mutual affinities. The supe-

rior agent, however, is not able to exercise an unlimited authority over the chemical powers; sometimes they are too strong for it. Some substances, accordingly, as madder, make their way into the system; while others, as arsenic, decompose and destroy the organs of the body themselves.

"But it is not in digestion alone that this superior agent makes the most wonderful display of its power; it is in the last part of assimilation that our admiration is most powerfully excited. How comes it that the prime substances wanted are always carried to every organ of the body? How comes it that fibrin is always regularly deposited in the muscles, and phosphate of lime in the bones? And, what is still more unaccountable, how comes it that prodigious quantities of some one particular substance are formed and carried to some particular place, in order to supply new wants which did not before exist? A bone, for example, becomes diseased and unfit for the use of the animal; a new bone therefore is found in its place, and the old one is carried off by the absorbents. In order to form this new bone, large quantities of the phosphate of lime are deposited in a place where the same quantity was not before necessary. Now who informs this agent that an unusual quantity of phosphate of lime is necessary, and that it must be carried to that particular place? Or, granting, as is most probable, that the phosphate of lime of the old bone is partly employed for this purpose, who taught this agent that the old bone must be carried off, new-modelled, and deposited and assimilated anew? The same wonders take place during the healing of every wound, and the renewing of every diseased part.

"But neither in this case is the power of this agent over the chemical agents which are employed absolute. We may prevent a fractured bone from healing, by giving the patient large quantities of acids. And unless the materials for new-wanted substances be supplied by the food, they cannot in many cases be formed at all. Thus the Canary bird cannot complete her eggs unless she be furnished with lime.

"As this agent, which characterises living bodies, does not

appear to act according to the principles of chemistry, any inquiry into its nature would be foreign to the nature of this work. Physiologists have given it the name of the living or animal principle; and to them I beg leave to refer the reader.

"No sooner is the animal dead, than the chemical and mechanical agents, which were formerly servants, usurp the supreme power, and soon decompose and destroy that very body which had been in a great measure reared by its means."

Doctor BIRD's exercise is devoted to an investigation of the chemical and medicinal qualities of Sanguinaria Canadensis. We think him equally fortunate in the selection of his subject, and in his manner of treating it. It were well if all our native plants, to which popular fame has assigned active medicinal virtues, were subjected to a like examination: we have ever considered subjects of this kind, as furnishing the very best materials for inaugural essays to our candidates for medical honors.

The Sanguinaria Canadensis grows abundantly in North America, from Canada to the Floridas, and is popularly known by many appellations, as the red root, puckoon, blood root, &c. As an article of medicine it has long held a high place, in the estimation of the vulgar. We find it noticed by Schoepf, in 1787; since which time several writers have recommended it in various diseases. With a view to ascertain its chemical qualities, Doctor Bird instituted a series of interesting experiments, which he has detailed at length, and this forms the most valuable part of the essay.

The following extract will furnish our readers with a specimen of the minuteness of Doctor Bird's chemical investigations; at the same that it gives us reason to believe that iodene may prove a valuable addition to the number of best tests for vegetable analysis:

"RESULTS.

"Series first, with the dried root, proves the presence of extract, as is evinced from the precipitate formed by the nitrate of silver. The action of the per-sulphate of iron may arise from some modification of the gallic acid. The extract matter was

shown from the precipitate caused by the nitrate of mercury, and from the precipitate induced by the muriate of tin. The extractive principle was also evinced by the opacity occasioned by the muriate and nitrate of barytes, and the muriate of cobalt. The effect produced by the nitro-muriate of platina was owing to extract. The extractive principle was also made evident by the action of the alkalies, and the precipitate induced by the acetate of lead. The tincture of galls formed a precipitate which evinced the presence of cinchonin, and the same inference may be drawn from the effects occasioned by the tartarized antimony and solution of iodene.

"From series second, the presence of gallic acid modified, was made more evident from the effect produced by the sulphate of iron.

"It also contributes to the confirmation of the fact, long since observed by Seguin, viz. that the gallic acid is often unaccompanied by the tannin principle, as in cinchona, crude or roasted coffee, the roots of the strawberry plant, milfoil, and a number of others. The extractive matter was shown by the precipitate induced by the sulphuric acid. The green colour which the infusion acquired by solution of potash, and the changes wrought by ammonia, are all referrible to the presence of extract. The resemblance of the precipitate in colour and specific gravity, as induced by the tincture of galls, to that which this re-agent forms with the cinchona, shows the existence of an analogous principle to the cinchonin of cinchona. No change being caused by the oxalate of ammonia, the absence of lime may be inferred. Extract was also shown by the muriate of tin, nitro-muriate of platina, and by the nitrate of barytes. From the effects of tartarized antimony in this series, the principle which Doctor Duncan calls cinchonin,* would appear to exist. The copious brownish black precipitate which was formed by a solution of iodene, was supposed to arise from the action of cinchonin.

"The third series proves, that alcohol extracts in a greater degree the active properties which exist in the decoction, and in addition, also a resinous matter. The red precipitate formed by the sulphuric acid, denotes abundance of extract. The alterations

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* See Doctor Duncan's experiments on the Peruvian bark in Nicholson's Journal, 8vo. vol. vi. p. 225.

effected by the nitric acid are referrible to the presence of extract. The cinchonin principle was made more evident by the dense orange precipitate formed by the tincture of galls. The precipitation made by the addition of distilled water demonstrates the presence of a resinous material. Extract was also made evident by the action of chromate of potash. Modified gallic was readily evinced from the dense precipitation caused by the per-sulphate of iron. The abundant precipitate induced by tartarized antimony, leaves no room to doubt the presence of cinchonin. The change produced by the addition of iodene are ascribed to the same principle.

"Series fourth proves, that the properties of the plant undergo no material change in the temperature of boiling alcohol. Most of the re-agents which were used in the third series, were used in the aqueous solution of the extract; and the effects produced tend to corroborate the results of the preceding experiments. The black precipitate instantly formed by the per-sulphate of iron, readily discovered the presence of gallic acid. The copious and dense precipitate induced by nitrate of mercury was owing to extract. The orange-red precipitate induced by the tincture of galls, evinces that the cinchonin principle in the Sanguinaria undergoes no material change by heat. The same conclusion may be drawn from the effects of tartarized antimony and iodene. The precipitate formed by the addition of muriate of tin was also owing to extract.

"I have stated the results of the simple decoctions, of the alcoholic infusions, and of the alcoholic extract, as taken up by water. In order to discover more satisfactorily the properties of the root as taken up by the latter menstruum, I subjected the tincture (fifth series) to the process of distillation. After the process had been continued, till nearly the whole had come over into the receiver, I employed the usual re-agents, and found all its properties discernible, though in a diminished degree.

"To ascertain how far the properties of the plant may be taken up by the cold aqueous infusion, the sixth series was instituted. It is barely necessary to observe, that the virtues of the recent root are abstracted in a considerable degree by means of the cold infusion. The usual re-agents were employed, and the results were nearly alike. Cinchonin was made evident by the tincture

of galls, tartarized antimony, and solution of iodene. The presence of extractive matter was proved by a variety of re-agents. Gum was made evident by silicated potash and the addition of alcohol.

"To demonstrate particularly what peculiar principle in the Sanguinaria, iodene precipitates, I thought it of importance to continue my experiments with the ethereal solution of the root; in which solution, I found iodene, tincture of galls, and tartarized antimony to produce precipitates of a brownish appearance. Neither of these precipitates can be ascribed to the presence of gum or extractive matter, as both of these principles are insoluble in ether.* The phenomenon, as produced by iodene, is then referrible to the presence of the same principle which the tincture of galls and tartarized antimony precipitate, viz. the cinchonin of Duncan and Vauquelin. To place the point beyond the cavil of criticism, I made a few relative experiments with the cinchona cordifolia, the crocus sativus, and gum arabic. In the alcoholic and aqueous infusions of the bark, a solution of iodene produced brownish coloured precipitates. Upon the saffron (which is known to consist chiefly of the extractive matter) iodene had no effect; neither did it evince any influence in a solution of gum arabic. That it does not act upon a resinous material, the changes it effected in the decoction of the Sanguinaria at once establish. That it is not fecula, we have only to refer to the precipitate iodene induced in the alcoholic infusion, a menstruum in which starch is insoluble. The difference in the colour of the precipitates as made by iodene in the various experiments, will also establish the point in question. Does not its action upon the Sanguinaria, then, depend upon the presence of cinchonin, or the *Sanguinarin* of the Sanguinaria Canadensis ?

"From the experiments which were instituted, and the results which I have attempted to deduce from them, it will appear that the Sanguinaria Canadensis contains, first, cinchonin; secondly, extractive matter; thirdly, a gummy material; fourthly, a resin; and fifthly, gallic acid in a state of combination. Whether it is to be ascribed to the existence of extractive matter, an opinion which Doctor Thomson maintains, I do not pretend to determine."—p. 32—40.

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* Brande's Chemistry.

Doctor Bird afterwards enters upon the medical uses of this plant; and from his own observation, he recommends it in various diseases. Among others, in affections of the lungs, and in pertussis. As a tonic he has found it of service in rheumatism, after the inflammatory symptoms had yielded to active depletion. From its peculiar principle he believes it will prove efficacious in intermittent fevers, and in diseases of general debility.

Medical and Philosophical Intelligence.

DOMESTIC.

Surgical Operations.—In addition to the notice contained in our last number, concerning an interesting operation performed by Dr. Mott, we have received the following communication, addressed to one of the Editors:

Dear Doctor,

Agreeably to promise, I send thee a few brief notes of my two last cases of operations, which thou witnessed, upon the inferior maxilla, for an osteo-sarcomatous disease of that bone.

On the 30th of March last, I tied the left carotid artery, and removed nearly half of the lower jaw bone, of a married lady, aged about twenty-two years, for an osteo-sarcoma of about twelve months duration. About one year before the operation was performed, she first observed a tumour about the place whence a molar tooth had some time before been extracted. Being at that time pregnant with her third child, the swelling increased but slowly, and was attended with but little pain. Since her confinement, which took place about five months ago, the swelling has increased rapidly, without much augmentation of pain. In extent this swelling was much less than in my first case, but it was rapidly

increasing, and had displaced the molar teeth and produced considerable deformity of the face. The operation was attended with the same happy result as in the former instance. No untoward symptoms occurred after the operation ; and in about four weeks after, she returned home.

A third case, much more formidable than either of the other two, has again come within my practice. On the 15th of May, I tied the right carotid artery, and removed the lower jaw on the right side, at the joint, and sawed it through on the opposite side at a sound part, after extracting the first bicuspis tooth. The tumour, before the operation, appeared nearly of the size of the patient's head. The diseased mass weighed twenty-two ounces avoirdupois. It is about ten years since its first appearance, and had been regularly enlarging, accompanied with but little pain. The prodigious magnitude of the tumour had for a year or more prevented the patient from taking any solid food, as his tongue could only lay flatwise between the tumour and the left cheek.

He was much exhausted by the operation, but in a short time recovered so as to swallow without difficulty. Most of the drink which he took, after the operation, was conveyed into the fauces through an elastic tube, which he adjusted upon the base of the tongue himself, in a manner so as to prevent, as much as possible, the motion of that organ and the cheeks, in the act of swallowing. Until the fourth day he continued to improve, and showed the most favourable indications of recovery. He was now seized with turns of fainting, difficulty of breathing, accompanied with violent pain in the left side, and very frequent and small pulse, and troublesome cough. He expired towards the evening of the fourth day, in one of his attacks of faintness.

The wounds were dressed on the morning of the fourth day, and appeared to be doing well ; that upon the face had, for more than two thirds of its extent, united by adhesion.

The examination, *post mortem*, showed inflammation of the lungs and effusion into the pericardium, as well as a deposit upon the mediastinum. Had it not been for the supervention of this affection of his chest, *I believe he would have recovered.*

I hope to be able to present thee with a circumstantial account of these several operations on the lower jaw-bone, for thy next number.

Believe me to be, with much respect,

VALENTINE MOTT.

JOHN W. FRANCIS, M. D.

Vaccination.—The Editors have received the report of the committee appointed by the Medical Society of Virginia, for the purpose of inquiring into the present received notions of Europe and America, as to the efficacy of the vaccine virus as a prophylactic against the variolous contagion. Its great length prevents its insertion. The decision of so respectable and powerful a society is no small evidence in favour of vaccination.

The society ascribe the cases of failure, which have occurred within their knowledge, principally to the circumstance that the disease itself is so simple as to have been, by consent of parties, entrusted to persons who were ignorant of its pathognomonic symptoms, thereby giving rise to the spurious forms of the disease. They strongly recommend that no patient, labouring under any cutaneous affections, be vaccinated ; and where, from necessity, it has been performed, that it be subsequently tested. They deem the best mode for preserving the matter for use, to confine it in the fluid form between two small plates of glass, and that next to this in regard to efficacy is the scab.

Lunacy.—We shall endeavour to present to our readers, by an early opportunity, an account of the Establishment lately erected near this city, for the management of the Insane—an institution in an eminent degree honourable to the state and country.

Statement of the Patients admitted into, and discharged from, the Bloomingdale Asylum, New-York, from the 1st of January to the 1st of June, 1822—communicated by JAMES EDDY, M. D. Resident Physician.

	Males.	Females.	
Remaining in the house, 31st Dec. 1821,	49	24	73
Admitted since that time,	22	13	35
Total,			108

Discharged—

	Cured.		Improved.		By Request.		Died.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	
For January,	4	2	0	0	0	0	2	0	8
February,	2	0	1	1	0	0	0	0	4
March,	1	0	1	0	0	1	1	0	4
April,	5	2	0	0	4	1	0	0	12
May,	3	1	0	0	1	0	0	0	5
	15	5	2	1	5	2	3	0	33

RECAPITULATION.

Discharged since 1st January, 1822—

As cured,	15 Males. 5 Females.
Improved,	2 Males. 1 Female.
By request,	5 Males. 2 Females
*Died,	3 Males.
Remaining 31st May, 1822,	46 Males. 39 Females.
Total,	118

In fourteen of the male and one of the female patients the disease was caused by intemperance.

Suspended animation from Drowning.—A case of this kind, in which some new and efficient modes of treatment were successfully used, we find recorded in a late journal,† by L. W. Smith. Dr. Strong, of Petersburgh, was the physician in whose practice the case occurred, and Dr. Smith gives the following account of the treatment that was adopted.

"He first ordered the body to be stripped of the wet clothes, and at the same time a bed to be prepared with woollen blankets thoroughly warmed with a common bed pan, and in addition to

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* One of the above patients died within twelve days after admission; having been received in a state of great bodily debility.

† American Journal of Science and Arts. By B. Silliman, Esq. &c.

these he directed a kettle of warm water. As soon as the clothes were off, he wiped the body with a flannel cloth, and laid it between the warm blankets. He then observed that appearances were very much against him, and he was doubtful whether he should succeed. Fortunately however, he did not despair, but still persevered in the application of his remedies. While he was preparing the electricity he directed the body to be rubbed with flannel cloths. He then passed the electric sparks twice in succession through the shoulders, and at the same time friction was continued over the whole body, but more particularly about the thorax. The lungs were next inflated by means of the common bellows. All this Dr. Strong observed had no effect. The water by this time was sufficiently warm for his purpose, of which he took about a pint; to this he added a small quantity of brandy. with about a half a table spoonful of Tinct. Cantharides, and gave it per anum. The temperature of the water I do not know. The body, in an erect posture, was next conveyed towards the fire, while the bed was again prepared with warm blankets, and the body returned. The electricity was the second time applied, and was immediately followed by a convulsive sigh. I was at this time rubbing the breast with a flannel cloth, and could perceive a convulsive effort within the thorax which I supposed to be the first returning throb of the heart, and which was repeated three or four times. The lungs were again inflated, and this also was immediately followed by a convulsive effort to breathe, and by an evident palpitation of the heart. The surface of the body was quite warm at this time, and the friction was consequently discontinued. Air was a third time blown into the lungs, and was followed by a discharge of water from the mouth and nostrils. Aqua ammoniæ was applied to the nose, and volatile liniment to the breast and back. The person soon began to breathe with tolerable freedom, and was enabled to swallow some warm cordial; a small quantity of blood was now taken, and he was the next day conveyed home to his friends."

Notices of some of the Mineral Springs in the County of Albany—In "A Geological Survey of the County of Albany, taken under the direction of the Agricultural Society of the County," by Pro-

fessor Eaton, and T. Romeyn Beck, M. D. we find the following notices of some of the mineral springs in that county. One of these springs is rendered peculiarly interesting from the fact of its being highly charged with the sulphate of magnesia, or Epsom salts.

" The most interesting spring observed by us, was that on the farm of Mr. Eliphalet Ackerman, at the village of Coeyman's Landing, mentioned in page 46 of this Report. Some of the water brought to this city, gave the following results with re-agents :

" 1st. Infusion of red cabbage was not affected by it.

" 2d. Nitrate of silver threw down a copious white cloud, which soon settled to a dark brown colour.

" 3d. Oxalate of ammonia threw down a white cloud, not very copious.

4th. Muriate of barytes threw down a dense white cloud, and a very copious precipitate.

" 5th. Carbonate of ammonia gave a dense cloud, with a copious white precipitate. The clear liquor was then filtered, and pure ammonia, on being added to it, produced a copious precipitate.

" 6th. Sulphuric and muriatic acids produced no effect.

" At the spring itself, we found indications of iron, carbonic acid, and sulphuretted hydrogen in small quantities. The bottled water, when brought to this city, seemed to have lost those substances, with the exception, that lime water and barytic water were rendered very slightly turbid.

" We are led to conclude from the above experiments, that the water contains

Sulphuric acid,
Muriatic acid,
Lime,
Magnesia,
Iron,
Sulphuretted hydrogen,
Carbonic acid.

"The result of several repeated experiments proved, that the lime precipitated from 160 grains of the water never exceeds $1\frac{1}{2}$ grains and the desiccated sulphate of magnesia, equals 2 grains. It thus

produced the latter salt at the rate of one lb. to every seven gallons of water. On re-dissolving the sulphate of magnesia, an insoluble sediment was found, which was sulphate of lime, and evidently produced by heating the sulphate of magnesia and muriate of lime together, and thus causing a double decomposition. The sediment, however, was in very small proportions, and not to exceed two or three per cent. in any of the trials.

"It is mentioned above, that no iron could be detected in the water brought to Albany. However, on taking the sediment contained in the bottle, and boiling it with sulphuric acid, it gave very strong indications of the presence of iron, both with nut-galls and the prussiate of pot-ash. We infer, that at the spring, the water contains a little carbonate of iron.

"A spring at William M'Kown's, Esq. Guilderland, is strongly impregnated with carbonate of iron and a little sulphuretted hydrogen. It is therefore a good chalybeate.* The same remark applies to the spring at Mr. Solomon's, near Gen. Van Rensselaer's, Watervliet.

"The springs at Mr. Hochstrasser's, Beaver Dam, Bern, in Wendell's Hollow, at Mr. Stephens', Coeymans, and in several other parts of the county, are similar in nature to the Harrowgate springs, at Greenbush."

Report on Absorption.—We have read, with much satisfaction, a very able and elaborate "Report of the Committee of the Academy of Medicine of Philadelphia, on the means by which absorption is effected."† The committee consisted of Drs. Richard Harlan, J. B. Lawrence, and B. H. Coates, and we think they have done credit both to themselves and the association which they represent, by their talent, industry, and candour. They give the following as the results of a very laborious and extended series of experiments, instituted in the presence of several distinguished gentlemen, among whom especially we notice Dr. Chapman, of Philadelphia, and Dr. Brown, of the Transylvania University.

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* Petroleum is found in large quantities floating on the water of this spring.

† The Philadelphia Journal of the Medical and Physical Sciences, No. 6.

"We conceive," say the Committee, "that we have thus established the following facts, in a manner as positive as this kind of evidence admits. 1. That colouring matters are not absorbed by lacteals in the living body. 2. That camphor is absorbed with much irregularity, and in too small quantity to afford proofs of the route of absorption. 3. That assafœtida is more permeating. 4. That prussiate of potass enters by the lacteals and ductus thoracicus. 5. That nux vomica and prussic acid destroy life by their operation on the nerves, and probably in no other way. 6. That the assertion of Magendie, that ink will infiltrate in the living body, is incorrect. 7. That the odours of camphor, assafœtida and mint, infiltrate, through the intestines. 8. That the chemical and odoriferous substances just enumerated, are transmitted into the system with much more delay and difficulty from the stomach, than from the intestinal tube, and with still less from the serous cavity of the abdomen."

It appears very clear from the experiments contained in this report, that the doctrine of the non-absorption of foreign matters, so ably and eloquently defended by Dr. Chapman is quite untenable, and the establishment of this fact does away in a great measure the whole of his reasoning against the humoral pathology.

Elements of Medical Jurisprudence.—Dr. T. Romeyn Beck, of Albany, is preparing for the press, and will shortly publish, a work to be entitled, ELEMENTS OF MEDICAL JURISPRUDENCE. It will be comprized in two volumes octavo, and is intended for the use both of the medical and legal professions.

New Medical Journal.—The first number of a new Medical Journal has appeared a short time since at Cincinnati. It is entitled, "The Quarterly Reporter of Medical, Surgical, and Natural Science; supported by Physicians and Naturalists of the western country; edited by John D. Godman, M. D." &c. Of the general scope and design of the work, some opinion may be formed from the contents, which we copy. "Preface—Medical Education—Observations on Surgical Anatomy—Medical Jurisprudence—De Conceptu adnotationes quædam—Observations on the new

Italian Doctrine of Counter-stimulus—Actions of the Animal Economy—Extraordinary case in Obstetrics, by Wm. H. Luckey—Miscellanea—Intelligence in Anatomy, Physiology, Surgery, Chemistry, &c. &c."

Longitude of New-York.—We copy the following account of the Longitude of New-York, as ascertained by the observation of Professor Renwick, of Columbia College, from the American Journal of Science and Arts, for June 1822.

"I beg leave to communicate, for publication in your valuable journal, my observation on the Solar Eclipse of 27th August last.

The observation was made from the cupola of the College in latitude 40° 42′ 45″ N. as deduced from a number of observations made by my colleague, Dr. Adrain.

The instruments made use of were an Achromatic Telescope by Dollond of four feet focal distance, a box-chronometer by Wingham, (London,) and a pocket chronometer by Morrice, (London.) The rates of both time keepers had been carefully noted for some time previous, and their error was observed by means of transits of the sun on the preceding and following day. This part of the preparation was performed by Messrs. B. & S. Demilt, watch makers of this city, who have erected an observatory, and provided themselves with a transit and an excellent astronomical clock.

With these instruments the times of beginning and end, were as follows, viz.

						days.	*hrs.*	
Beginning—Apparent time at New-York.								
	1821.	August.	-	-	-	26.	19.	37′.32″
End	do.	do.	do.	do.	do.	26.	22.	20′.58″

The morning was by no means favourable; I was in consequence prevented from taking a set of altitudes, that might have enabled me to state the time from my own observations.

The view of the beginning of the Eclipse was as favourable as I could have desired; the clouds cleared for a few minutes from the sun's face, and my preparatory projection was so far accurate as

to enable me to have in the centre of the field of the telescope the exact point of impact.

With regard to the end, the clouds had by that time accumulated to such a degree as to compel me to remove the dark glass from the telescope and I had to contend with alternations of partial observation and intense light.

From the above observation, by a cursory calculation, for the accuracy of which I cannot fully vouch, I make the longitude of the Cupola of Columbia College 74.° 5.′ 11.″ or in time 4hrs. 56.′ 23.″ 4 W. from Greenwich. The mean of a number of Chronometers makes it about 74.° 8′· W. and the Longitude given upon Eddy's Map is 74.° 0.′ 45.″ W."

FOREIGN.

Acupuncturation.—This is a surgical operation, and implies puncturing by means of a needle. The operation is of Asiatic origin, and is employed for the removal of local pain. But, notwithstanding the boasted efficacy of the measure among the Asiatics, it has only recently attracted general attention in Europe, where some favourable reports have been made on it in the public journals. It is considered as peculiarly adapted to diseases of a rheumatic character, unattended by inflammation or excitement of the vascular system. According to Berloiz, of Paris, acupuncture dissipates instantly that state of distress which sometimes attends rheumatism of the external muscles subservient to respiration. "In the space of one or two minutes, a patient whose sufferings drew from him tears, exclaims he is quite well."

In favour of this operation, we have likewise the experience of Dr. Haime, of Tours, who has lately published an interesting memoir on the subject, in the 13th volume of the "Journal Universel des Sciences Medicales," from which we shall extract the following case :

"A woman had suffered for several days with wandering rheumatic pains, which continued daily to increase in violence ; there were, however, at all times, fixed pains in the shoulder and in the right arm, which acquired such a degree of intensity by intervals, that the patient could not refrain from crying out. She was in

this state when she came to consult me: finding, however, neither alteration in the pulse, nor increase of heat, nor redness of the skin, nor tension, nor swelling in the part affected, I considered the case to be simple rheumatalgia, and passed the needle in the middle of the arm, between the fibres of the triceps brachialis muscle; the place designated by the patient as the seat of the pain. The pain was driven into the fore arm, and the second puncture caused it to descend into the hand, and a third being made in this part, caused it totally to disappear, and the patient said, with delight and astonishment, she was cured; and was so satisfied with this treatment, that she spoke of it to every body."

A treatise on acupuncturation has also been published in England, by Mr. Churchill, Member of the Royal College of Surgeons, in London. The author of this work does not attempt to give any theory respecting the rationale of the remedy, but he speaks very decidedly in favour of its efficacy in "local diseases of the muscular and fibrous structure of the body," to which he has hitherto confined its use. He considers the operation as inapplicable in diseases of an inflammatory character. We will give the details of one or two cases from Mr. C.'s book, which will convey a more correct notion of the nature and effects of the operation, than any general description.

The first case is that of a bricklayer, aged 30 years, who came to Mr. C.'s house, supporting himself by a stick in one hand, and resting the other against the wall, as he proceeded.

"The body was bent at nearly right angles with the thighs, and his countenance indicated acute suffering. He had been attacked, he said, three days before, with darting excruciating pains in the loins and hips; every motion of the body produced an acute spasmodic pain, resembling an electric shock; and the attempt to raise the body to an upright position was attended by such insupportable agony, as obliged him to continue in this state of flexion rather than encounter it by altering his position. There was no more constitutional disturbance than was to be expected from three days and nights of constant pain; the pulse was a little quickened, and the tongue white, but I attributed this derangement to the irritation set up by the pain and loss of rest. I directed him to place himself across a chair for support during the operation, and I immediately introduced a needle of an inch

and a half in length into the lumbar mass on the right side of the spine; in two minutes time, I observed that he seemed to rest the weight of his body more on his limbs, and in the next instant, without any inquiry being made, he observed, that he felt his limbs stronger from the 'pain having left his hips.' He next plainly indicated that the disease was lessened, by raising his body; from which he only desisted, by being desired to remain at rest, through fear of the needle being broken. The instrument having remained in its place about six minutes, the patient declared he felt no pain, and could, if he were permitted, raise himself upright; it was then withdrawn; the man arose, adjusted his dress, expressed his astonishment and delight at the sudden removal of his disease, and having made the most grateful acknowledgments, left the house with a facility as though he had never been afflicted."—p. 49.

A young man, employed in a timber yard, whilst in the act of lifting a heavy piece of mahogany, was attacked suddenly with a violent pain in the loins. The weight fell from his hands, and he was unable to raise himself. He was immediately cupped and blistered on the part; but two days passed without much relief.

"On the third day the operation of acupuncturation was performed upon the part of the loins pointed out as the seat of the injury, which, as in the former case, dissipated the pains in five or six minutes, and restored the motions of the back. He returned, however, the next day, with the same symptoms as at first, but in a mitigated degree. A needle was now passed to the depth of an inch on each side of the spine, which, as I expected terminated the disease in a few minutes, and it was with pleasure that I understood the next morning, that the man had gone to his usual employment."—51.

The instrument employed by Mr. C. is a common sewing needle, adapted to a small ivory handle. The mode of introducing the instrument he thus describes:

"The handle of the needle being held between the thumb and fore finger, and its point brought into contact with the skin, it is pressed gently, whilst a rotatory motion is given it by the finger and thumb, which gradually insinuates it into the part, and by continuing this rolling, the needle penetrates to any depth with facility and ease. The operator should now and then stop to ask if the patient be relieved; and the needle should always be allow-

ed to remain five or six minutes before it is withdrawn. This mode of introducing the needle, neither produces pain (or at least very little) to the patient, nor is productive of hæmorrhage, which Dr. Haime says arises from the fibres being separated, rather than divided, by the passing of the needle; the former of which (the absence of pain) is a point in its favour, which few surgical operations possess."—81.

We have now presented to our professional brethren sufficient matter to direct their attention to the operation of acupuncturation—and here our duty ends. We have had no experience of the remedy, and will therefore refrain from offering any opinion concerning its efficacy.

Oil of Croton.—Much interest has lately been excited in Europe by this old and long neglected substance, a single drop of which operates copiously and sometimes violently as a cathartic. This oil is obtained from the seeds of the Croton Tiglium, a native of the East Indies. In the 11th volume of the Asiatic Researches, the Croton Tiglium is thus noticed by Dr. Flemming:

"The seeds of this plant were formerly well known in Europe, under the names of *grana tiglia*, and *grana molucca*. They were employed as hydragogue purgatives; but, on account of the violence of their operation, they have been long banished from modern practice. For the same reason they are seldom used by the Hindu practitioners, though not unfrequently taken as purgatives, by the poorer classes of the natives. One seed is sufficient for a dose, being rubbed with a little rice gruel, or taken in a bit of plantain fruit."

The 25th number of the "Journal of Science and the Arts," contains a valuable paper on the chemical composition of the seeds and oil of the Croton tiglium, by Dr. Nimmo. The author has ascertained that alcohol dissolves a part of the oil, and that both its purgative principle and characteristic acrimony are transferred to the solution, which he considers preferable, as a medicine, to the entire oil. The undissolved portion, which has the appearance of a fixed oil, is destitute of the characteristic acrimony of the original oil.

From a chemical examination of the seeds of this shrub, Dr. N. obtained the following result:

The *shells*, which constitute 36 parts in a 100 of the seeds, possessed no acrimony. 100 parts of the kernels of the seeds yielded

27 of acrid purgative principle,
33 fixed oil,
40 farinaceous matter.

The oil itself consisted of 45 acrid principle,
55 fixed oil.

100

Dr. N. considers the alcoholic solution the best form of administering the active principle of the croton oil, and for proportioning the dose to the various circumstances of cases under treatment. The following is the formula he generally employs, together with the directions for avoiding the uneasy feelings which are produced in the mouth and throat:

R. alcoholic solution, ʒ ss.
Syrupi simplicis.
Mucilag. gum. arab. aa. ʒ ii.
Aq. distillat. ʒ ss. M.—ft. haustus.

"After swallowing a little milk, take the draught very quickly, and wash down with repeated quantities of the same diluent." The author has administered this remedy in more than a hundred cases. Slight vomiting was produced in not more than three or four cases, and "in not many more was nausea felt; in all the cases purging was induced in a space of time between half an hour and three hours after taking the medicines: the purgative effects were generally moderate," and rarely accompanied with griping. It was successfully employed in a case of abdominal dropsy, which resisted the use of other remedies. He has also found it a powerful auxiliary to opium in the cure of delirium tremens; and in a case of excessive corpulence, with strong determination to the head amounting almost to apoplexy at times, a few doses of the alcoholic solution produced the most signal benefit.

Piper Cubeba in Leucorrhœa.—Dr. James Orr, of Edinburgh, has communicated to Dr. Duncan, jun. four cases of leucorrhœa cured by cubebs. In the first case, the patient had laboured under the disease for seven months. In the second, the complaint

had lasted nearly eight years; in the third, it was of two years' standing; and in the fourth, the discharge had resisted the use of several remedies for six months. In the first three cases, the disease succeeded to abortion. The pepper was administered either in water or milk, or made into an electuary with treacle. The dose was from one drachm and a half and upwards, three times a day, but never exceeded three drachms.—*Lond. Med. & Phys. Journ. May*, 1822.

Sub-nitrate of Bismuth in Intermittent Fevers.—Dr. Henkesew, a physician at Hildesheim, has been in the habit of prescribing this remedy in agues, for several years. He considers it to be a powerful febrifuge and anti-spasmodic. He exhibits this salt in the dose of four grains, with a few grains of sugar, every two hours.—*Ibid.*

Hydrocyanic Acid.—Mr. Bush has been in the habit, for some time past, of using, pretty extensively, a form of medicine, the suggestion of which, he says, he owes to our Treatise on Prussic Acid, (*qy.* the second edition?) We mean the emulsion of bitter almonds, in which, as it is well known, prussic acid is naturally present. "Having witnessed," says he, "most beneficial effects from the acid, in its chemical concentrated form, in cases of pulmonary irritation and spasmodic cough, I determined to try a mixture of the bitter almond, as containing the principle in a natural state: this medicine I have given, for the last two years, with considerable success. I have the mixture prepared from a confection made in conformity to the recipe for the Confectio Amygdalæ in the Pharmacopœia Londinensis, only substituting the bitter for the sweet almond; and have given the mixture, thus prepared from a confection of bitter almonds, in doses of an ounce, or an ounce and a half, every four hours; sometimes I have added to each dose a few drops of tinct. scillæ, or tinct. opii camph. I am fully convinced that this medicine is a useful addition to our pharmaceutical preparations: the ease with which it may be at all times prepared, and the certainty of its being in a state of purity, are, I consider, strong recommendations to its use. I have, in a few instances, seen it produce sickness, when given in large doses: where that has been the case, the dose has been lessened, but the medicine continued with advantage. (Frome, April, 1822.)—*Ibid.*

Transfusion of Blood.—MM. Prevost and Dumas have been engaged in a number of microscopic observations and experiments on the nature of the globules belonging to the blood, and on the transfusion of this fluid. They admit the correctness of the opinion of Hewson respecting the form of the globules, and agree with Home in saying, that these central spheres unite themselves in filaments, which differ in no respect from the muscular fibre. They, however, differ from him, where he supposes that the globules experience a rapid change after the emission of the blood from a vessel. These physiologists have found in the milk, in pus, and in chyle, globules or spheres of similar form and dimensions to those of the blood. They consider that these small spheres are surrounded by the colouring matter of the blood. The globules of this fluid are circular in all the mammalia ; their size varies in different animals ; they are smallest in the goat. The colouring matter, which surrounds them, is so thin, that its thickness could not be ascertained by means of the micrometer employed by these physiologists. The globules are elliptic in birds, and vary considerably in size in this class of animals. This variation takes place chiefly in the great axis of the globules. They are elliptic also in all cold-blooded animals.

These gentlemen found that, after bleeding an animal until all organic actions ceased, and injecting, within a few minutes afterwards, the warm blood taken from another of the same species, until a quantity equal to that taken away was restored, the animal gradually revived and took nourishment, and perfectly recovered, if the operation was properly managed.

If the blood injected was taken from an animal of a different species, possessing globules of the same form, but different in dimensions, the animal was very imperfectly revived, and could be rarely preserved beyond six days. The pulse became in these frequent, the temperature fell remarkably if not artificially preserved, while the respiration retained its natural frequency. Immediately after the operation, the dejections became mucous and bloody, and preserved that character until death.

If blood, with circular globules, was injected into the veins of a bird, the animal generally died before the operation was completed, in very violent and rapid nervous convulsions.

Transfusion of blood from the cow or sheep into the veins of

the cat, or rabbit, was followed by the recovery of the animal in a number of cases.

The blood of the sheep excited in the mallard (canary) the most violent and rapid convulsions, which were immediately followed by death, according as was observed to follow the injection of the first syringeful in landbirds.—*Ibid.*

Chemical Composition of the Red Rose.—M. F. Cartier has endeavoured to ascertain the chemical composition of the petals of the red rose. M. Gay Lussac had previously refuted the idea that the colouring principle was the result of the presence of the oxide of iron; since this substance had been found in greater abundance in the petals of the white rose. The experiments of M. Cartier furnish the following substances:—1. A matter of a fatty nature; 2. An essential oil; 3. Gallic acid; 4. A colouring principle; 5. Albumen; 6. Tannin; 7. Soluble salts—carbonate and phosphate of lime; 9. Silica; 10. Oxide of iron. The colouring principle was obtained from the docoction of the petals, by means of the acetate of lead, which produced its precipitation. This precipitate being well washed and dried, was afterwards treated by alcohol. *Lond. Med. Repos. No.* 99.

Purification of the Oil of Turpentine.—Dr. Nimmo has employed the following method to purify the oil of turpentine for medicinal use, without diminishing its efficacy, but greatly lessening its disagreeable taste, and its injurious action upon the kidneys. To eight parts of the oil add one part of the strongest alcohol, and let them be well agitated; in a few minutes a separation takes place; the oil, unless very impure, falls to the bottom, and the alcohol, having dissolved the impurities, floats at the top. Pour off the alcoholic portion, add an equal quantity of alcohol as before, agitate and separate the liquids. If this be repeated three or four times, the oil becomes nearly tasteless, almost without smell, and when a portion of it is evaporated, it leaves no residue. It is necessary to remark, that, pure as the oil may be rendered, it speedily undergoes alteration, and returns to its original state of greater or less impurity.—*Jour. of Science and the Arts, No.* 25.

On the Existence of Mercury in the waters of the Ocean—By M. Proust.—1. Hilaire Rouëlle remarked, a long while ago, that whenever he purified the crude salt of the custom-house in silver basins, they became covered here and there with those spots which are peculiar to mercury.

2. The same salt, decomposed by sulphuric acid, always gave, in the top of the retorts, small quantities of a sublimate decidedly mercurial.

3. The fact generally known of whitening yellow metals, by putting them for some time into crude or rough salt, added to the preceding results, determined Rouëlle to announce that there was no doubt of the existence of mercury in marine salt.

4. Among the preparations which came to me from Paris to Spain, to furnish the laboratory of the artillery there, were a dozen bottles of fuming muriatic acid, which had been prepared in the laboratory of the druggist, Charlard: all these bottles contained mercury. I at first perceived it, from an amalgam of tin and mercury being left on dissolving some tin in the acid; and afterwards I directly ascertained its presence by purifying the acid in the usual manner, and examining the residuum left; it contained mercury mixed with oxide of iron. It was sufficient indeed to pour a few drops of the proto-muriate of tin into the acid, to precipitate the mercury in powder. Hence, then, mercury incontestibly exists in the custom-house salt of France.

5. In Spain, the government put to sale the rock-salt of the mines of Cordova and Minglanilla. The first time that I purified the salt sold at Madrid, in a silver basin, I remarked the same spots as those noticed by Rouëlle.

6. Having used all the muriatic acid of Paris, I procured some from the manufactory of acids at Cadahalso. That which was sent to me, had been procured by means of calcined clay. It contained iron, and, to my surprise, mercury also. From that time I remarked, in my course of lectures, the singular accordance between the salt of France and Spain in this respect.

The presence of mercury in rock salt is not astonishing, but when it is found also in the salt produced by evaporation from sea water, there is greater difficulty, because it must be supposed to be in solution. There needs not, I think, more facts or better proved ones, than those mentioned to establish with certainty the exist-

ence of mercury in the sea water of this period, and that it has existed also in those which, by evaporation or condensation, have given rise to the deposits of rock salt. All the chemists of the last century, but one, speak of the mercury of marine salt, probably from observations analogous to those I have mentioned, and Rouëlle remarked it before me.

There is nothing as yet demonstrated in the origin of rock salt; nevertheless, if it should ultimately be proved that the principal known mines contain mercury, it would be a new demonstration that the waters of the ocean had concurred in producing them; a consequence which has been already drawn from the discovery of potash in the waters of the ocean, and in rock salt.

An experiment I have desired to make for a long time, but for which the opportunity has not yet offered, is to attach a plate of gold, of two or three inches surface, to some part of a ship, where it would be continually plunged in the water. Half an ounce of gold laminated, would be amply sufficient; all that is required is, to ascertain whether, at the end of a long voyage, it had become amalgamated; but the person who would successfully make the experiment must not forget that if the plate is lost, it is probably because it would readily detach itself, nothing scarcely being so fragile as gold penetrated by mercury. As to the expense, I shall readily bear it with pleasure. Application may be made to M. Lucas, agent of the Institute, who will immediately give the value to any person willing to take charge of the experiment.—*Ibid.*

Preservation of Anatomical Specimens.—Dr. Macartney, of the Dublin University, has for some time employed a solution of alum and nitre, for the purpose of preserving anatomical preparations. He finds that it preserves the natural appearances of most parts of the body more completely than spirits or any other fluid heretofore used. The proportions of the alum and the nitre, and the strength of the solution, require to be varied according to circumstances; and, in order to thoroughly impregnate the anatomical preparation, the liquor must for some time be occasionally renewed. The solution possesses such antiseptic powers, that the most putrid and offensive animal substances are rendered perfectly free from fetor by it in a few days. *Lond. Med. Repos.*

Chemical Analysis of Cubebs—By M. Vauquelin.—This article, which has lately become so fashionable in this country in the treatment of Gonorrhœa, has attracted the attention of M. Vauquelin, who has furnished the public with an elaborate analysis of it. We shall select such portions of his description and analysis as we think more particularly interesting to the medical profession.

"Cubebs are the fruit of the piper cubeba (triandria trigynia,) a perennial plant which grows in the Philippine Islands, in Java, Guinea, and the Isle of France.

"The cubebs which were employed for these experiments were presumed to have been collected three years; they were imported by the Dutch, and had been in a warehouse in Paris for 18 months.

"These grains do not all possess the same colour; they are rounded and attached to a stalk: if they are examined after being macerated in water, four coverings are discoverable; the first is fleshy, and softens in water; the second is of a gray colour, and is nearly transparent; the third is thin like the peel of an onion, of a yellowish brown colour; the fourth is a very thin white pellicle, immediately covering the grains, some of which are round, and entirely fill their covering; others are flat on one side, and rounded on the other; others again are wrinkled and covered with fatty matter; and lastly, there are some which are of a white colour.

"Many of these grains contained a white concrete oily matter, and which had every appearance of a crystal. This concrete matter melted in a silver spoon, remained fused, and without emitting any odour."

It results from the extensive analysis of M. Vauquelin, that cubebs contain:

"1. A volatile oil, which is nearly solid,

"2. Resin, resembling that of balsam copaiva.

"3. A quantity of another and coloured resin.

"4. A coloured gummy matter.

"5. An extractive principle similar to that which is found in leguminous plants.

"6. Some saline substances.

"I am desirous that this analysis, upon which I have bestowed some pains, may serve to direct physicians to that employment of cubebs in the healing art, to which they may think them applicable." *Ann. of Philosophy, for March*, 1822.

Medical Antiquities.—Dr. Rochoux has lately discovered a curious monument in the gardens of the capucins of Sarria, a village in the neighbourhood of Barcelona, destined to preserve the memory of a pestilential disease with which this place was afflicted, in 1651. Dr. Rochoux describes this monument to be composed of different groups of individuals, formed from a baked earth and coloured. Of these the largest does not much surpass the fourth part of the common size of the human subject. These groups form a procession which ranges along the exterior of a church. In the midst of a number of assistants, a man appears to fall, struck by the disease. Beyond this central point are observed the sick, the dying, and the dead; the former receiving the kind assistance of, the latter carried by, monks. All these present red blotches, or sores, on the sides, or at the posterior part of the neck, on the arms, and on the limbs. Two of the sick are represented in the act of vomiting; one of these, who are coloured *a dark yellow*, is ejecting an abundance of black matter; another is applying his hand to his mouth, as if in the act of arresting the escape of the matter, with which his distended cheeks appear to be filled. Their eye-lids possess a copperish red colour. A monk appears sustaining the head of one in the one hand, while, with the other, he holds a vessel containing some potion.

On the same monument is represented a small edifice of two floors, covered by mourning drapery and funereal emblems. It is open on one side, and allows the eleven dead monks to be seen, three being placed on the second floor, four on the first, and four on the ground floor. Underneath, the following inscription appears in the Catalan dialect :—

"Noms dels onse religiosos que moriren de la pesta, en lo anii 1652, assistin in lo spiritual y temporal al poble de Sarria essent affligit de tal contagi; y son enterrats bain est panteon: *P. F. Fructuos Rialp, etc. etc.*"

It is apparent from this monument, that a disease ravaged this part of Spain, which was characterized *by yellowness of the skin, by black vomitings, and by red coloured blotches or sores on different parts of the body;* and which appears, from these signs, to have been neither the true plague nor the yellow fever, but in some points to have resembled the epidemic very lately raging in that city.

Lond. Med. Repos. for May, 1822.

METEOROLOGICAL OBSERVATIONS

FOR MARCH, 1822.

Made at the New-York Hospital, by RICHARD PENNELL, M. D.

	Barometer.			Thermometer.			Winds.			Rain Gauge.	Weather.
	7 A M	2 P M	9 P M	7 AM	2 PM	9 PM	7 AM	2 PM	9 PM		
1	30 30	30 30	30 30	50	70	57	sw	sw	sw		clear
2	30 20	30 20	30 00	48	52	52	sw	sw	sw	—.17	cloudy
3	29 80	29 80	29 80	43	50	39	w	w	nw		cloudy
4	29 90	30 00	30 10	45	55	40	nw	nw	nw		clear
5	30 20	30 20	30 20	41	50	45	nw	sw	sw		clear
6	30 30	30 30	30 20	45	65	50	sw	sw	sw		clear
7	30 20	30 20	30 20	50	55	40	ne	ne	sw		cloudy
8	30 30	30 30	30 40	36	40	30	ne	ne	ne	—.02	do
9	30 60	30 60	30 60	36	45	28	ne	n	n		clear
10	30 60	30 60	30 60	30	51	31	n	sw	sw		do
11	30 30	30 30	30 20	30	55	51	sw	sw	sw		cloudy
12	29 80	29 80	29 80	45	63	44	sw	sw	sw	—.08	variable
13	29 80	29 80	29 90	45	54	34	sw	nw	nw		do
14	30 20	30 20	30 30	35	52	30	nw	nw	nw		clear
15	30 55	30 55	30 40	32	52	38	nw	nw	nw		do
16	30 20	30 12	30 00	32	46	35	sw	sw	sw		cloudy
17	29 88	29 80	29 80	40	60	45	sw	sw	sw		clear
18	29 66	29 70	29 70	41	62	50	sw	sw	sw		do
19	29 76	29 76	29 70	42	62	38	ne	ne	ne		cloudy
20	29 66	29 66	29 66	42	70	47	ne	ne	ne		do
21	30 28	30 28	30 30	42	65	40	s	s	s		clear
22	30 30	29 99	29 90	40	56	43	se	se	w	—.60	cloudy
23	29 90	30 07	30 26	46	54	37	w	w	w		variable
24	30 38	30 38	30 44	38	56	40	w	w	s		clear
25	30 48	30 48	30 50	42	62	38	ne	se	se		variable
26	30 62	30 62	30 60	40	64	50	se	se	se		clear
27	30 47	30 40	30 16	50	60	50	s	e	se	—.41	do
28	30 00	29 78	29 78	50	60	45	se	s	sw	—.79	cloudy
29	30 00	30 00	30 08	40	50	38	nw	nw	w		do
30	30 13	30 10	30 10	40	50	50	nw	nw	nw		do
31	30 10	30 00	30 00	48	60	50	nw	nw	nw		do

The quantity of rain which fell this month, is 2 inches and 7—100ths.

The weather of the month of March, was for the most part moderate. On the mornings of the 3d, and 8th, a small quantity of snow fell in large flakes, which instantly disappeared. On the mornings of the 17th and 26th, the ground and house tops were white with hoar frost. On the 22d, there fell a little hail, accompanied with rain, the sun was obscured all day; at 11 P. M. lightning in the north. On the 28th. at 3 P. M. strong S. W. wind with a heavy shower of rain, for the space of three quarters of an hour, in which time there fell 54—100ths of an inch of rain. At 6 P. M. a beautiful double rainbow, which lasted about 20 minutes; at half past 7 P. M. thunder and lightning; the accompanying rain amounted to 25—100ths.

METEOROLOGICAL OBSERVATIONS

FOR APRIL, 1822.

Made at the New-York Hospital, by RICHARD PENNELL. M. D.

	Barometer.			Thermometer.			Winds.			Rain Gauge	Weather.
	7 A M	2 P M	9 P M	7 AM	2 PM	9 PM	7 A M	2 P M	9 P M		
1	29 64	29 60	30 04	50	61	32	nw	nw	nw		cloudy
2	30 20	30 10	30 00	32	50	38	nw	sw	sw		variable
3	29 86	30 00	30 15	41	70	45	sw	sw	sw		cloudy
4	30 44	30 44	30 25	41	59	40	sw	sw	ne		clear
5	30 00	30 00	30 00	45	45	45	ne	ne	ne	—.78	cloudy
6	30 18	30 18	30 18	40	60	42	n	sw	sw		do
7	30 18	30 18	30 18	41	66	55	sw	s	s	—.02	do
8	29 88	30 00	30 24	55	56	45	sw	ne	ne		do
9	30 34	30 30	30 26	41	48	46	ne	ne	ne	—.40	do
10	30 26	30 10	30 00	40	45	45	ne	ne	ne	—.33	do
11	29 77	29 80	30 08	50	69	48	nw	nw	nw		do
12	30 30	30 30	30 26	45	70	45	w	nw	se		variable
13	30 20	29 85	29 78	48	52	60	se	s	s	—.31	cloudy
14	29 60	29 65	30 00	56	72	52	s	w	w	—.03	do
15	30 17	30 17	30 17	42	60	45	nw	nw	nw		do
16	30 17	30 17	30 10	48	55	40	se	se	w	1.02	do
17	30 00	30 08	30 30	50	60	50	w	w	w		do
18	30 30	30 30	30 27	50	60	41	ne	ne	ne	—.31	do
19	30 27	30 27	30 27	40	48	44	ne	ne	ne	—.27	do
20	30 27	30 27	30 30	44	48	45	ne	ne	ne	—.02	do
21	30 37	30 34	30 20	45	60	43	ne	ne	ne		do
22	30 00	30 00	30 16	42	56	42	n	nw	nw	—.14	do
23	30 28	30 30	30 25	42	50	44	ne	ne	ne		do
24	30 10	30 00	30 00	48	70	53	sw	sw	sw		variable
25	30 00	30 05	30 10	50	80	70	se	sw	sw		do
26	30 15	30 15	30 15	70	78	59	sw	ne	ne		do
27	30 15	30 12	30 12	55	71	59	ne	s	s	—.93	cloudy
28	29 88	29 80	29 80	58	70	65	s	sw	sw		variable
29	30 06	30 06	30 20	62	72	64	nw	nw	sw		clear
30	30 30	30 30	30 23	60	73	61	nw	sw	sw		do

The quantity of rain which fell in April, is 4 inches and 56—100ths.

This month has been remarkable for its number of rains. On the 5th, at half past 6 P. M., thunder, with very vivid lightning from different parts of the horizon, accompanied with heavy rain. There were evidently two currents of wind—the superior bringing the clouds from S. W., the inferior blowing from N. E. The electric fluid descended in several parts of this city. On the afternoon of the 14th, a gale from the W. with a small quantity of rain from a cloud passing over. On the 27th, at 10 P. M. a gale from the S. with heavy rain. The sun was obscured on the 9th, 10th, 13th, 16th, 19th, and 20th. Thick fogs on the mornings of the 5th, 11th, 14th, 15th, and 30th, which disappeared soon after the sun had risen.

METEOROLOGICAL OBSERVATIONS

FOR MAY, 1822.

Made at the New-York Hospital, by RICHARD PENNELL, M. D.

	Barometer.			Thermometer.			Winds.			Rain Gauge.	Weather.
	7 AM	2 PM	9 PM	7 AM	2 PM	9 PM	7 AM	2 PM	9 PM		
1	30 10	30 08	30 06	62	84	70	sw	sw	sw		variable
2	30 06	30 06	30 20	61	88	75	se	sw	sw		coludy
3	30 25	30 25	30 25	63	75	66	ne	ne	ne		variable
4	30 25	30 25	30 03	58	55	52	ne	ne	ne	—.74	cloudy
5	29 70	29 70	29 78	50	55	47	ne	nw	nw		do
6	29 88	29 96	29 96	46	72	54	w	w	w		clear
7	30 00	30 00	30 00	54	74	64	w	nw	nw		variable
8	29 96	30 00	30 18	60	76	62	nw	nw	nw		cloudy
9	30 20	30 26	30 26	56	71	58	nw	nw	nw		do
10	30 35	30 27	30 27	54	70	58	ne	sw	w		clear
11	30 27	30 27	30 34	56	75	58	w	sw	sw		do
12	30 45	30 47	30 47	55	74	57	sw	sw	sw		do
13	30 47	30 47	30 44	58	75	62	sw	sw	sw		do
14	30 40	30 38	30 32	61	78	61	sw	s	s		do
15	30 16	30 10	30 22	60	75	68	s	s	n	—.18	cloudy
16	30 24	30 24	30 28	62	72	64	n	sw	sw	—.05	do
17	30 35	30 35	30 35	58	68	66	sw	s	s		do
18	30 30	30 26	30 22	62	78	68	s	sw	nw	—.28	do
19	30 20	30 22	30 26	64	80	72	s	s	sw		variable
20	30 30	30 30	30 30	63	75	66	s	s	s		cloudy
21	30 30	30 24	30 16	64	70	64	s	s	s	—.05	do
22	30 06	29 96	29 90	66	85	75	s	w	w	—.20	do
23	30 00	30 08	30 08	70	80	68	sw	sw	sw		do
24	30 22	30 26	30 36	64	75	66	ne	nw	nw		variable
25	30 60	30 60	30 60	60	69	65	sw	sw	sw		clear
26	30 60	30 50	30 46	58	75	60	se	se	sw	—.10	cloudy
27	30 34	30 34	30 26	56	69	62	sw	sw	sw	—.05	do
28	30 12	30 12	30 12	64	85	75	sw	sw	sw		clear
29	30 08	30 12	30 20	72	80	75	sw	se	se		variable
30	30 29	30 29	30 29	65	73	70	se	se	ne	—.07	cloudy
31	30 28	30 28	30 28	62	78	70	ne	s	s	—.02	do

The quantity of rain which fell in May, is 1 inch and 74—100ths.

On the 8th, a few drops of rain from a passing cloud. 16th, at 7 P. M. lightning, with very loud thunder, and a small quantity of rain; 18th, moderate showers; at 7 P. M. thunder. On the 22d, 10 P. M. a gust of wind from the S. W. thunder, &c. The sun was obscured on the 4th, 18th, and 30th. Fog on the mornings of the 7th, 14th, and 15th.